

# Birla Central Library

PILANI (Jaipur State)

Class No :- 658

Book No :- L99H

Accession No :- 11410





# **THE INSTITUTE OF ECONOMICS OF THE BROOKINGS INSTITUTION**

The Carnegie Corporation of New York in establishing the Institute of Economics declared:

"The Carnegie Corporation, in committing to the Trustees the administration of the endowment, over which the Corporation will have no control whatsoever, has in mind a single purpose—namely, that the Institute shall be conducted with the sole object of ascertaining the facts about current economic problems and of interpreting these facts for the people of the United States in the most simple and understandable form. The Institute shall be administered by its Trustees without regard to the special interests of any group in the body politic, whether political, social, or economic."



# THE BROOKINGS INSTITUTION

The Brookings Institution—Devoted to Public Service through Research and Training in the Humanistic Sciences—was incorporated on December 8, 1927. Broadly stated, the Institution has two primary purposes: The first is to aid constructively in the development of sound national policies; and the second is to offer training of a super-graduate character to students of the social sciences. The Institution will maintain a series of co-operating institutes, equipped to carry out comprehensive and interrelated research projects.

The responsibility for the final determination of the Institution's policies and its program of work and for the administration of its endowment is vested in a self-perpetuating Board of Trustees. The Trustees have, however, defined their position with reference to the investigations conducted by the Institution in a by-law provision reading as follows: "The primary function of the Trustees is not to express their views upon the scientific investigations conducted by any division of the Institution, but only to make it possible for such scientific work to be done under the most favorable auspices." Major responsibility for "formulating general policies and coordinating the activities of the various divisions of the Institution" is vested in the President. The by-laws provide also that "there shall be an Advisory Council selected by the President from among the scientific staff of the Institution and representing the different divisions of the Institution."

## BOARD OF TRUSTEES

ROBERT S. BROOKINGS  
WHITEFOORD R. COLE  
FREDERIC A. DELANO  
GEORGE EASTMAN  
RAYMOND B. FOSDICK  
FRANK J. GOODNOW  
JEROME D. GREENE  
ERNEST M. HOPKINS

DAVID F. HOUSTON  
VERNON KELLONG  
SAMUEL MATHER  
JOHN C. MERRIAM  
HAROLD G. MOULTON  
JOHN BARTON PAYNE  
LEO S. ROWE  
BOLTON SMITH

PAUL M. WARBURG

## OFFICERS

ROBERT S. BROOKINGS, *Chairman*  
LEO S. ROWE, *Vice President*  
FREDERIC A. DELANO, *Treasurer*  
HAROLD G. MOULTON, *President*

## ADVISORY COUNCIL (1929-30)

ROBERT R. KUCZYNAKI  
LEVERETT S. LYON  
EDWIN G. NOURSE

THOMAS WALKER PAGE  
HENRY P. SEIDEMANN  
WILLIAM F. WILLOUGHBY

# **HAND-TO-MOUTH BUYING**

**A Study in the Organization, Planning,  
and Stabilization of Trade**

**BY  
LEVERETT S. LYON**

**WASHINGTON, D. C.  
THE BROOKINGS INSTITUTION  
1929**

Copyright, 1929, by  
THE BROOKINGS INSTITUTION



Set up and printed  
Published October, 1929

All rights reserved, including the right of reproduction  
in whole or in part in any form.

*Printed in the United States of America by*  
The Lord Baltimore Press, Baltimore, Md

*Each investigation conducted under the auspices of The Brookings Institution is in a very real sense an institutional product. Before a suggested project is undertaken it is given thorough consideration, not only by the Director and the staff members of the Institute in whose field it lies, but also by the Advisory Council of The Brookings Institution. As soon as the project is approved, the investigation is placed under the supervision of a special Committee consisting of the Director of the Institute and two or more selected staff members.*

*It is the function of this Committee to advise and counsel with the author in planning the analysis and to give such aid as may be possible in rendering the study worthy of publication. The Committee may refuse to recommend its publication by the Institution, if the study turns out to be defective in literary form or if the analysis in general is not of a scholarly character. If, however, the work is admittedly of a scholarly character and yet members of the Committee, after full discussion, cannot agree with the author on certain phases of the analysis, the study will be published in a form satisfactory to the author, and the disagreeing Committee member or members may, if they deem the matter of sufficient importance, contribute criticisms for publication as dissenting footnotes or as appendices.*

*After the book is approved by the Institute for publication a digest of it is placed before the Advisory Council of The Brookings Institution. The Advisory Council does not undertake to revise or edit the manuscript, but each member is afforded an opportunity to criticize the analysis and, if so disposed, to prepare a dissenting opinion.*



## DIRECTOR'S PREFACE

Of the many pronounced changes with which business men found themselves confronted when the post-war boom collapsed in 1920, few caused more uneasiness or aroused more discussion than the practices which came to be called "hand-to-mouth buying." The concern which was felt at that time—when the phenomena were ascribed to the business depression—increased during the following years as it became apparent that hand-to-mouth buying continued even with greatly increased activity of business. It came indeed to be held responsible in many quarters for so-called "profitless prosperity."

This study takes the business man's phrase "hand-to-mouth buying" and interprets it in terms of both the business and the economic issues involved. On the basis of a great mass of business statistics, it undertakes a measurement of the changes which have been going on and of their actual significance in the organization of production and distribution of goods. Examination is made of the relation of all of these phenomena to the problem of business stabilization; and the forces which are likely to determine the future of hand-to-mouth buying are set forth.

The study represents perhaps the most extensive application of trade statistics to a practical problem that has yet been made. Through first-hand contacts with

business, the author has supplemented the large volume of data which the Department of Commerce and the Federal Reserve Board have been collecting over a decade with statistics obtained from trade associations and individual concerns. The result is a volume which should be valuable not only to business men who have found hand-to-mouth buying a matter for consideration, but to all those who are concerned with problems of trade, business stabilization, and economics generally.

The members of the staff appointed to aid the author in the preparation of this book were Charles O. Hardy and Cleona Lewis.

EDWIN G. NOURSE,  
*Director.*

Institute of Economics,  
September, 1929.

## AUTHOR'S ACKNOWLEDGMENTS

The author finds himself at the conclusion of this study indebted to many persons. There are those who are responsible for the collections of trade statistics, of which extensive use has been made, and the various librarians of Washington, whose services have been invoked upon repeated occasions. There are certain research workers in government and university service, and there are a large number of business and trade executives who have aided in gathering data and from whom the author has received suggestions in conference and correspondence.

While the names of a number of the business men who were most generous with figures must, at their own request, be withheld, it is pleasant to acknowledge the aid given by J. W. Morrisson of Fuller-Morrisson Company; John Davies and J. W. Anderson of Woodward and Lothrop; B. B. Burgunder of S. Kann Sons Company; W. F. Hisey of Palais Royal; Frank E. Gorrell, Secretary of the National Cannery Association, and many members of that organization; W. J. Donald, Director of the American Management Association, and many members of that association; G. A. Renard and B. M. Hall of the National Association of Purchasing Agents; M. L. Toulme, Secretary of the National Wholesale Grocers Association; J. H. McLaurin and R. H. Rowe of the American Wholesale Grocers' Asso-



ciation; Sylvan L. Stix of Seeman Brothers; A. T. Kearney and J. H. Megarity of Swift and Company; Edward N. Wentworth and Rudolf A. Clemen of Armour and Company; Julius H. Parmelee, Director of the Bureau of Railway Economics; E. L. Moulton of Charles Ilfeld Company; James Stone of *The Shoe Retailer*; George Spangler, formerly of the National Shoe Retailers Association; and Anson M. Titus, formerly of the Massachusetts Warehousemen's Association. William J. Carson of the Federal Reserve Board (now of the University of Pennsylvania) has been very helpful in making available statistics collected by the Board. There is also an obligation to E. A. Duddy and E. E. Ferebee of the University of Chicago for certain data on warehouse shipments.

Thanks are due to the Committee associated with the study. Responsibility for the great number of computations involved in the handling of the statistical material was assumed primarily by Sheldon B. Akers, while the drafting of the many statistical charts included in the book was in the main the work of Ralph P. Ward. In the earlier stages of the work William Harvey Young, and in the later stages Helen May Wheeler, acted as assistant to the author. He is greatly indebted to both.

LEVERETT S. LYON.

Washington, D. C.,  
September, 1929.

# CONTENTS

	PAGE
DIRECTOR'S PREFACE .....	vii
AUTHOR'S ACKNOWLEDGMENTS .....	ix

## PART I. THE SETTING

### CHAPTER I

THE PHRASE AND ITS BUSINESS BACKGROUND.....	5
---	---

### CHAPTER II

THE ECONOMIC SETTING OF THIS BUSINESS PROBLEM....	12
I. Specialized Units and the Flow of Trade.....	12
II. Contractual Organization of Specialized Units—the Flow of Orders.....	14
III. The Problem .....	23

## PART II. THE EVIDENCE

### A. THE ORDER BASIS OF INDUSTRY

#### CHAPTER III

THE ORDER BASIS OF INDUSTRY: THE CONCEPT.....	31
---	----

#### CHAPTER IV

THE ORDER BASIS: CERTAIN INDIVIDUAL COMPANIES....	36
I. A Large Shoe Company.....	36
II. A Manufacturer of Women's Hosiery.....	45
III. A Manufacturer of Men's Clothing.....	48
IV. Individual Food Canning Companies.....	50
V. A Large Steel Manufacturing Company.....	53

## CHAPTER V

	PAGE
THE ORDER BASIS: CERTAIN INDUSTRIES.....	58
I. The Order Basis for Iron and Steel.....	59
II. The Order Basis for Building Materials.....	62
III. The Order Basis for Textiles.....	70
IV. Futures Buying of Canned Foods.....	72
V. Two Unclassified Industries.....	78

## CHAPTER VI

THE ORDER BASIS: BUYERS' REPORTS.....	82
I. The Order Basis Furnished by Department Store Purchases .....	82
II. The Purchasing of Purchasing Agents.....	89

## B. THE SIZE OF UNITS IN THE FLOW OF TRADE

## CHAPTER VII

THE MEANING OF THE SIZE OF UNITS.....	97
---------------------------------------	----

## CHAPTER VIII

COMPARATIVE SIZE OF ORDERS.....	100
I. Size of Order Changes among 115 Manufacturers..	100
II. The Sizes of Orders in the Canning Industry....	113
A. The Varying Sizes of Orders for Corn.....	113
1. Number of Orders of Indicated Sizes.....	114
2. Volume in Various Sizes of Orders.....	124
B. The Sizes of Orders for Canned Peas.....	132
C. Sizes of Orders for Canned Tomatoes.....	138
1. The Record of an Eastern Canner.....	139
2. The Record of a Western Canner.....	144
3. A Study of Four Companies for a Five-Year Period .....	144
D. Sizes of Orders for Canned Fruit.....	146
1. Pineapples .....	146
2. Peaches .....	147
3. Pears .....	148
4. Berries .....	151
5. Cherries .....	154
E. Sizes of Orders for Canned Salmon.....	156

# CONTENTS

xiii

## CHAPTER IX

	PAGE
COMPARATIVE SIZE OF ORDERS ( <i>Continued</i> ).....	159
I. The Sizes of Orders Out of Warehouses.....	159
II. Varying Sizes of Orders Received by Wholesale Grocers .....	169
III. In the Wholesale Drug Trade.....	177
IV. Received by Textile Mills.....	183
V. Received by Shoe Manufacturing Companies.....	186
VI. Size of Orders in Fresh Meat Sales.....	190
VII. In the Hardware Trade.....	197

## CHAPTER X

HAND-TO-MOUTH SHIPPING? .....	201
I. Are Shipments Growing Smaller?.....	202
II. Size of Shipments Compared with Size of Orders..	214

## PART III. EFFECTS AND CONCOMITANTS

### A. STOCK BURDEN

#### CHAPTER XI

THE CONCEPT .....	223
-------------------	-----

#### CHAPTER XII

STOCK BURDEN OF GOODS FOR SALE BY OTHERS THAN MERCHANTS .....	229
I. Samples among the Non-ferrous Metals.....	229
II. Samples from the Iron and Steel Industry.....	232
III. Samples from the Textile Industry.....	235
IV. Samples from the Food Industry.....	238
A. Canned Foods .....	238
B. Meat Products .....	243
C. Butter and Cheese .....	244
D. Refined Sugar .....	246
V. Samples from the Building Industry.....	247
VI. Samples from Agriculture.....	251
A. Wheat .....	251
B. Cotton .....	254
VII. Unclassified Industries .....	255
A. Boots and Shoes .....	255
B. Gasoline and Pneumatic Tires.....	258

CHAPTER XIII		PAGE
STOCK BURDEN OF RAW MATERIALS.....		261
CHAPTER XIV		
STOCK BURDEN OF GOODS IN THE HANDS OF MERCHANTS..		266
I. Stock Burden of Wholesalers.....		266
II. Stock Burden of Retailers.....		270
B. STABILIZATION ?		
CHAPTER XV		
IS THE FLOW OF ORDERS BECOMING MORE STABLE?.....		279
I. A Method of Measuring Relative Stability of Flow.		280
II. Variation and Stabilization in Several Industries..		283
III. The Flow of Orders to Particular Companies.....		289
CHAPTER XVI		
THE FLOW OF GOODS: EARLY STAGES.....		293
I. The Flow of Goods in Trade Generally.....		294
II. Iron and Steel.....		296
III. Non-ferrous Metals .....		298
IV. Textiles .....		300
V. Food Products .....		304
VI. Building Materials .....		321
VII. Bituminous Coal .....		323
VIII. Ten Unclassified Manufactures.....		326
IX. Two Pervasive Services.....		329
CHAPTER XVII		
THE FLOW OF GOODS: ON TO THE CONSUMER.....		332
I. Wholesalers' Shipments .....		332
II. To the Consumer.....		335
CHAPTER XVIII		
STABILIZATION OF STOCKS.....		343
I. Iron and Steel.....		344
II. Non-ferrous Metals .....		346
III. Manufacturers' Stocks of Textiles.....		348
IV. The Building Industry.....		352
V. Stocks of Food Products.....		355
VI. Stability of Stocks in a Variety of Industries.....		358

## CONTENTS

xv

### CHAPTER XIX

	PAGE
DOES HAND-TO-MOUTH BUYING STABILIZE PRODUCTION?.	362

### C. CERTAIN EFFECTS ON COSTS AND MARKETING RELATIONSHIPS

### CHAPTER XX

THE COSTS OF SMALL ORDERS.....	373
I. Small Order Costs among Manufacturers.....	374
II. Cannery Reports of Costs.....	384
III. Cost Curves for Warehouse Deliveries.....	390
IV. A Wholesale Grocery Sample.....	393

### CHAPTER XXI

THE INCIDENCE OF SMALL ORDER COSTS.....	397
---	-----

## PART IV. THE PERMANENCY OF THE NEW CONDITIONS

### CHAPTER XXII

ARE THE NEW CONDITIONS NEW?.....	423
I. A Ninety-Year Record of Dry Goods Buying Practice .....	424
II. The Record of Shoe Buying.....	433
III. Changes in Buying Practices in Certain Other Trades .....	440

### CHAPTER XXIII

CURRENT TRENDS AND THE OUTLOOK.....	447
BIBLIOGRAPHICAL NOTE .....	472
CLASSIFIED LIST OF CHARTS .....	473
LIST OF TABLES .....	477
INDEX .....	479



# **HAND-TO-MOUTH BUYING**





**PART I**  
**THE SETTING**



## CHAPTER I

### THE PHRASE AND ITS BUSINESS BACKGROUND

The American genius for coining or adopting picturesque phrases is nowhere better exemplified than in the parlance of business. The same rhetorical adroitness that characterized "taxation without representation" and created such slogans as "protection of infant industries," "the American system," "the full dinner pail," and "make the world safe for democracy" has given us, in business, "trust-busting," "unfair competition," "business as usual," "mass production" and "simplification." Sometimes such phrases are slogans for the creation of a business attitude, as was the case, in 1917, with "business as usual." Sometimes they are used to characterize a situation in business or a condition of economic affairs, and of this sort American economic history furnishes many examples.

The period following the war brought a variety of situations which found their descriptive tags. Around such concepts and phrases as "buyers' market," "excess capacity," "plethora of funds," "Fordizing," "back to normalcy," "disparity of prices," "a depressed agriculture," "orderly marketing," and "profitless prosperity" we have organized much of our post-war thought, or at least much of our discussion.

Beginning about 1920 the recorders of current business history became widely articulate on a subject called "hand-to-mouth buying."<sup>1</sup> In the years that have followed, written and oral discussion of this topic has been general and profuse. Magazines of business have given extended space to the theme; numerous trade journals have discussed it; the economic surveys have commented upon it; it has been repeatedly mentioned in the reviews of Federal Reserve Districts;<sup>2</sup> even the most widely read American weekly has honored it.

Trade associations have circularized their members concerning hand-to-mouth buying. Many business convention programs have discussed the question. Conferences to consider the subject have brought together manufacturers, railroad men, wholesalers, publishers, bankers, and university professors.<sup>3</sup> Much of the dis-

<sup>1</sup>This was by no means the first time the term was used; see for example Chapter XXII.

<sup>2</sup>See for example those of the 4th District for October 1, 1928.

<sup>3</sup>One such conference was that held in Chicago in February, 1927, under the auspices of the Metropolitan Life Insurance Company and participated in by such men as M. J. Gormley of the American Railway Association; Walter C. Carroll, Vice-President of the Inland Steel Company; Wheeler Sammons, President of A. W. Shaw Company; and Roy L. Davidson, President of the National Wholesale Grocers' Association. The papers given were published by the Metropolitan Life Insurance Company in a little volume called *Hand-to-Mouth Buying*.

A symposium on the subject was published by the Farmers' Loan and Trust Company of New York. It includes statements by President DuPont of the DuPont Company; Louis F. Swift of Swift and Company; J. Edson White, President of Armour and Company; Alexander Leggee, President of the International Harvester Company; H. S. Brown, President of the Central Leather Company; Fairfax Harrison, President of the Southern Railway System; C. H. Markham, Chairman of the Board of the Illinois Central; P. W. Litchfield, The Goodyear Tire and Rubber Company; Jackson Johnson, at that time Chairman of the Board of

cussion, as might be expected, has been entirely superficial; some of it has been thoughtful and thought-provoking; and a considerable part of it has been of a character well calculated to make the business man believe that he confronted a problem which needed analysis and consideration.

The problem of hand-to-mouth buying is in certain senses a war baby. It was neither a planned for nor an anticipated offspring. Rather it was a foundling which American business found upon its door-step, when the confusion of war and immediate post-war activity had passed.

The business antecedents of post-war hand-to-mouth buying are the events which began with the outbreak of the war in Europe in 1914. At that time the United States was in a period of minor depression which had been becoming increasingly serious since the latter half of 1913. The first shock of war was paralyzing to American business. In July, 1914, the New York Stock Exchange was closed, to remain closed until December. Pig iron production declined from 2,348,000 tons in March to 1,516,000 tons in December. Unfilled orders

---

The International Shoe Company; and Edward Prizer, Chairman of the Board of the Vacuum Oil Company, among those of nearly 60 comparable "captains of industry," not to mention Professors Taussig, Ogburn, and Kemmerer.

Mr. Wheeler Sammons reported in *System* for April, 1927, that for "over seven months hand-to-mouth buying has been among the subjects pointed to as of greatest current interest by the members of the Council on The Trend of Business."

Nor has the subject lacked discussion in academic circles. It was made the central topic for the marketing section of the American Economic Association in 1927 and was given considerable prominence in the *Annals* of the American Academy for September, 1928.

of the United States Steel Corporation went down nearly 25 per cent; building permits for the last quarter of the year were barely more than half those for the second quarter. The index of production in basic industry declined abruptly. The end of the year found the country in a state of serious depression.

But in 1915, as orders for war supplies poured into the country, conditions began to improve rapidly. During the year prices advanced, production grew, and exports expanded. The year, indeed, marked the beginning of an expansion which, with increased production, expanding trade, active employment, and general prosperity, grew into the vast and powerful industrial machine organized for the United States' participation in the war. With our entrance into the war in 1917, government price control was introduced into a number of industries. Compulsory military service and enlistment drew their millions into the army, but the industrial mechanism continued to function with tremendous energy.

With the close of the war there came a momentary recession and confusion. Foreign trade hesitated, stock prices slumped, business felt that the era of war boom was over. But this recession quickly gave way in 1919 to what was probably the most excited business activity the United States has ever experienced. Building, which had been neglected during the war went into a revival which made an enormous demand for materials and labor. New securities came out in unprecedented volume, the funds being used for building, for the ex-

pansion of our industrial equipment, for state and municipal developments, and for railroad improvements.' This expansion of equipment, a climax to the expansion of the war period, was accompanied by a rise in commodity prices, the index of which rose from 193 in February, 1919, to 247 in May, 1920. Sky-rocketing of prices induced a mad scramble for commodities. Speculation in goods was rampant, inventories piling high in physical form and even higher in dollars-and-cents value. To many people no price seemed too high, as the price was always higher when another purchase was made. Consumers and merchants complaining of high prices were told repeatedly: "They will be higher when you buy again." The demonstrated truth of this statement led eventually to a degree of acceptance on the part of consumers and added to the willingness of retailers, wholesalers, and manufacturers to expand operations and inventories in prospect of better prices. The old price landmarks were inundated in the flood of rising prices. For manufacturer, for merchant, and consumer all sense of price perspective was lost. The general spirit of the time was to ride with the flood rather than to attempt to stem it.

The peak of this post-war boom came in the spring of 1920. Commodity prices reached their top in May. A rapid decline followed. Two facts, important for our purposes, began to impress themselves upon the general mind. The first was the large inventories of finished goods, partly finished goods, and raw materials. The

\* *Review of Economic Statistics*, 1921, p. 98.



second was our enormous physical capacity to produce goods. This enormous physical capacity has repeatedly, since that period, been called *overcapacity*. There appear to be but few major industries concerning which overcapacity has not been alleged.

Orders which had been avidly placed in the preceding period were, in 1920, slashed mercilessly with cancellations. Inventories, which had made men rich in the preceding period, bankrupted them now. Forced sales, cut prices, liquidations, were rife. A new phrase, "buyers' strike," was heard on every hand. Condition of purchase and sale were soon characterized by the term "a buyers' market," not because buyers would buy but because buyers could buy more or less as they would. And "as they would" was said to include placing no orders ahead, buying in small lots, buying only for immediate requirements—that is, *buying from hand to mouth*.

While the changes thus briefly described are the business facts out of which hand-to-mouth buying is said to have come, these changes are by no means the only causes belonging in a list of origins of modern buying attitudes. To some extent these attitudes come from causes much more remote than the expansion and collapse of war and post-war business. While a somewhat more extended consideration of these causes is undertaken at a later point,<sup>6</sup> it is worth while to remark here that many agencies and influences played a part. Educational forces have long been at work, tending to induce purchasers to strive for lower inventories, more rapid

<sup>6</sup> Chapter XXII.

turnover, and greater efficiency in purchasing methods. Improvements in transportation and communication lend themselves to the buying attitudes now common. Price decline is vital.

But when considering the business changes and the even more remote causes which have brought hand-to-mouth buying, we are likely to overlook the most significant implications of the matter. Business problems have, usually, a setting, a significance that runs deeper than the symptoms most easily observed and most commonly discussed. The problem of hand-to-mouth buying is no exception to this rule. While distinctly a problem of business, it is as definitely a problem that has its sources in and its effect upon our methods of economic production, and our scheme of organizing industry. While it may raise difficult issues for any particular business, it is at bottom concerned with business as a method of organizing industrial activity. To discuss it without a consideration of its relation to these matters would be to omit those phases of the problem which are of most concern and of most interest.

We may turn, therefore, for a beginning, to the economic setting of hand-to-mouth buying.

## CHAPTER II

### THE ECONOMIC SETTING OF THIS BUSINESS PROBLEM

Hand-to-mouth buying is a business phrase for a business problem. But the phenomena involved have their origin in a certain institutional setting, and the problems they raise have economic bearings of great significance. These arise from the peculiar importance of buying and selling in the organization of modern economic life.

#### I. SPECIALIZED UNITS AND THE FLOW OF TRADE

It is unnecessary to do more than remind the reader that specialization is one of the most important methods of mass production. It not only exists in factories, but is used in banks, stores, offices, and every other unit of our productive mechanism where output is large and management efficient. Its use always requires that one specialist after another be moved to "the work," or, as is far more common, that "the work" be moved from one specialist to another. It is the latter method which has brought the high development of work routing and scheduling in manufacturing plants.

But specialization of economic units is more important for our purposes. This is the specialization which

gives us not a series of operations within a plant, or store, or office, but a series of plants, stores, and offices. This is the specialization which has substituted for the farmer selling his product to the village consumer, a farmer, a produce exchange, a wholesaler, and a retailer. This is the specialization which gives us brokers and merchants, commission men and sales agents, advertising agencies and transporting companies. It gives us all the specialists of trade.

But this specialization gives us also many specialists who are not in trade in the ordinary sense. It gives us the specialization of mining companies, farmers, and manufacturers as well. A farmer raises cattle. From these one manufacturer—the packer—produces hides, a second leather, a third shoes. These are shipped to a wholesaler or a retailer and come eventually, fully produced, to the consumer. In bringing them there, contributions have also been made by the railroad, the trucking company, the telegraph and telephone concerns, the bank, the insurance company, and many other businesses the specialized work of which though less obvious is none the less real.

*Production by specialized units results in what may be termed the flow of trade.* Such production, by specialized units, makes necessary a continuous process of physical adjustments, the adjustment of the work done by one unit to that done by others. The iron-mining company's output must be related to the transporter's capacity, and this to the steel manufacturer's needs, this to what the maker of agricultural implements will handle, and this

to the farmer's requirements. The farmer's production of wheat may be carried toward further production by coöperatively or privately owned elevators; and the physical activities of these must be related to central market buyers, to millers, to exporters, to bakers, and to retailers.

It is in this constant physical adjustment of the work of the specialized units that there is effected for industry as a whole a flow of partly finished goods in the process of production, comparable to that existing in any single factory. The specialized economic units of the nation—indeed of many nations—are but one great plant, with the work of each geared with the work of others as carefully as its managers are able to effect that relationship.

## II. CONTRACTUAL ORGANIZATION OF SPECIALIZED UNITS—THE FLOW OF ORDERS

The task of relating and organizing the array of specialized units which make up our productive mechanism might well challenge the ambition and defeat the ability of the greatest production engineer, planning commission, or board of industrial strategy. But it is well enough known that there is no production engineer, or planning agency, in charge of activities of American industry as a whole. The process of directing our productive machine is quite different from that which we find within a manufacturing plant. In the latter the work of one man is related to the work of another by the scheming of a manager, or a superintendent, or a planning department, the officers of which comprehend the whole arrangement of work. But the organization into a system of our specialized units (some of which are

themselves gigantic integrations of many units) is left to the judgment and skill of the individuals in charge of each of them. These men—business men—are the organizers, not only of their own businesses but, in effecting relationships with one another, of the system as a whole. There is no general organization of industry excepting as business men agree upon relationships.<sup>1</sup>

*The specialized business units are organized into a system by means of buying and selling.* The characteristic method of establishing a relationship between two businesses is by an agreement or contract to buy and sell. The method is made possible through a great variety of markets. Some are highly organized and institutionalized, some are altogether informal; some work crudely, some smoothly. In some the parties meet on even terms, in some one party may have an advantage,<sup>2</sup> but all have a single use—to effect the adjustments between one specialized producer and another, or the last of a series of producers and a consumer.<sup>3</sup>

If the term “order” is used to designate all types of contractual arrangements, we may say that the flow of

<sup>1</sup>To speak thus of business organizing industry is something of an exaggeration. Important industrial activities such as road building, education, carrying on wars, distributing mail, and determining justice are organized chiefly in more socialistic ways. So, too, it would be an exaggeration to say that our economic units are *all* business units, for our more socialized activities are carried on by governmental rather than business units.

<sup>2</sup>What are even terms and when advantage is taken are, of course, matters of judgment, sometimes determinable by legal process.

<sup>3</sup>Through it all runs a constant series of computations of prices and profits, prices at which materials, equipment, and labor, and goods at all stages of production may be bought and sold. The pervasiveness of these price calculations has caused our system of adjustments to be frequently characterized as a price system.

goods among our specialized business units is organized by a flow of orders. With few exceptions the physical transfer of goods is at every step attended by, indeed predicated upon, an order or contract explicit or implied. The actual physical movement of goods is in terms of these agreements.

*Production may be "on order" or in advance of orders.* While goods do not ordinarily move from one producer to another excepting on orders,<sup>4</sup> they may be made ready to move long before orders exist. The business man is guided in production in two ways: (1) orders in advance; and (2) "observation of the market." The latter may be little more than a hope of the future, or a comparatively casual observation of price movements, or it may be the most careful and intensive market analysis and measurement of sales potentialities.

Agriculture furnishes a most striking case of a gigantic industry with comparatively small amount of order-placing in advance. The great bulk of the nation's crop of corn, wheat, livestock, and cotton are produced at the risk of the farmer without the hedge of advance orders, with, indeed, comparatively no commitments on the part of anyone to buy at a satisfactory price, or even to buy at all.<sup>5</sup> Even in agriculture, however, the advance order

<sup>4</sup> Consignments are an exception, for example.

<sup>5</sup> This is far from saying that the farmer has no assurance in a realistic sense. Producing, as he does for the most part, the elementary necessities of life, he has an assurance of demand which is equalled in few, if any, industries. This assurance of demand, in general, always apparent and always expressing itself through organized markets, is one of the strong and at the same time weak elements in the farmer's position. It is one of the factors which causes many persons to undertake farming who would not other-

is by no means unknown. Wool is bought "on the sheep's back" months before the sheep has grown it. At times calves are contracted for before they are born. Crops of vegetables for canners are frequently produced "under contract." Wheat and cotton are often bought before harvest.\*

*From the standpoint of a given producer, there are obvious advantages in having commitments precede production.* As one can see clearly enough, any specialized producer "with orders on the books" can proceed with comparative assurance. In line with the orders received, he may plan his own production program. He may, as the phrase goes, "budget his activities." He may lay out a labor policy and employ workers to the degree that his orders justify. His purchases of materials and equipment may be pre-planned as to quantities, qualities, and time. If the orders have been taken at sufficiently high prices, he may do these things with a partial, and at times a considerable, insurance against loss. The insurance would be complete if commitments (including labor agreements) were absolute, but cancellations or resignations become frequent when buyers or sellers find them-

---

wise undertake it. For the staple crops there are always buyers at "the market price." It is much less apparent that there is always a market for all non-agricultural types of goods which may be produced. Accordingly the difficulty of selling offers a greater deterrent to entrance into some lines.

\*At times, also, a profit is attempted through a stoppage rather than an encouragement of the flow of goods. Men buy goods and hold them for no purpose but an expected advance in price. Such activities may be in form of merely speculation in inventories used in one's regular business, or they may be the purchasing and holding of goods by a person who has no other contact with the movements of trade.



selves confronted with losses, or even with possibilities of buying or selling on materially better terms.

But there are also certain disadvantages of commitment in advance. Most important of these is the elimination of the chance of profit by price advance. The man who agrees to deliver goods three months hence at a stated price, although hedged against many risks, does at the same time bar himself against gain from rising prices.<sup>1</sup>

Indeed the desirability of a steady flow of advance orders has often been presented as a basis for business stabilization. Such an ideal flow of orders is thought of as one which would make possible a sort of ideally stabilized production; an ideally stabilized flow of goods.<sup>2</sup> An ideal program for the flow of orders might be conceived as one in which consumers gave orders in advance for all goods of all kinds which they would consume in a given period. On the basis of such a concept, it is easy for an active imagination to construct a scheme of social budgeting, or pre-planning for all the activities of specialized production. Consumers' orders might be collected by retailers, who would transmit them as their own orders to wholesalers or manufacturers. When each manufacturer had received his quota of the orders, he

<sup>1</sup> In the ordinary course of trade, however, advance orders are regarded as a benison, not a danger. This assumes necessarily that the orders are taken at a price offered by the seller, or at least one to which he has agreed. One might assume, therefore, that contract prices would include a calculation by both parties of the possibilities of price advance before time of delivery.

<sup>2</sup> Utopians as well as business men have pointed out the merits of such social organization. The concept of business stabilization and the concept of complete pre-planning by social agencies are, in certain respects, interestingly near alike.

would proceed to secure funds, labor, and materials and to organize his production program. Thus one may imagine society performing its economic activity under a grand plan—a gigantic system of budgetary control, which if perfected would eliminate unemployment, excess capacity, and periods of business depression.\*

Magnificent as such a notion appears when one's engineering attitudes are uppermost, such a pre-planned system of social production, such complete stabilization, based on complete orders, would be extremely difficult under any conditions yet proposed. It is apparently impossible under a system of free consumer choice and freedom of individual decision in business. In the first place, consumers "do not choose" to order in advance. The desires of tomorrow may not be desires of today, and the consumer knows that fact. Moreover, most goods are bought for a period of use, and even for an individual, the point at which an article is consumed and the rapidity with which that point is reached varies from time to time.<sup>10</sup> For many types of goods also, the consumer will desire to see samples if not the

\*Through the philosophy of consumer coöperative organization there has run a strain of the ideal industry organized from such a point of view. In England and Scotland integration has been carried back from the retail store to wholesaling, manufacturing, and importing. So prominent an observer as John Stuart Mill hopefully viewed the possible "social justice" and "beneficial ordering of industrial affairs" which he believed might grow from consumer organization. (See his *Principles of Political Economy*, Book IV, Section 6.) Other discussions of the possibilities and the limitations of economic organization based on consumer coöperation may be found in Fay, C. R., *Coöperation at Home and Abroad*; Woolf, Leonard S., *Co-öperation and the Future of Industry*; and Webb, Sidney and Beatrice, *The Consumers Coöperative Movement*.

<sup>10</sup>Unless one assumed some scheme of fixed prices, the price difficulties outlined above would probably be insuperable.

actual unit to be delivered." The preparation of a sample of a complicated article implies at least that the productive machinery for making that article in quantity has already been designed and constructed. The business man at present is under great pressure while producing a line of samples, therefore, to meet what he believes will be the desires of purchasers. Where the machine technique exists he must not only establish a plant and equip it with the machinery and fixtures necessary for production, but he may also have found it necessary to have planned for the machines which made his machines, the machines which made those, and so on through long series of actions.

Seasonal production and the vagaries of nature make impossible perfect pre-planning of industry or perfect fulfillment of much pre-planning that exists or might be attempted. No system yet devised will eliminate nature from the problem of controlling the flow of goods. Contemplating the difficulties of a planned and stabilized production based on stated consumers' wants, one must conclude that the satisfactory invention of such a riskless and non-speculative economic order is farther in the future than the devising of mechanisms to place risks where they can best be borne.

Social arrangements which formally limit consumers' choice and which formally limit business men from prof-

"It was on a basis of widely distributed samples that even the Ford Model A became extensively ordered in advance. Yet confidence in Mr. Ford as a super-capable and reliable manufacturer is little short of a religion and the forthcoming Model A received an unequalled amount of free publicity. Its prospective appearance was surpassed in general interest by few national events.

iting by the miscalculations of others or by their own superior shrewdness to the extent necessary for budgeted social production is simply not our system of free consumer choice and individual decision in business. It is entirely conceivable that such arrangements might be constructed and that certain gains would accrue. That the consumer's freedom and opportunity for varied consumption would be decreased is probable." That the losses from bad guesses as to what consumers will want or can be made to want, from production at too high a cost, could be lessened seems more likely.

*The most dramatic conflict in American economic ideas is the struggle between our "engineering" and our "private enterprise" attitudes.* This is not a conflict between classes; it is a clash of ideas—of ideas found in nearly every one of us. In the American business man, indeed in most Americans, there is no notion more deeply imbedded than that of orderliness of procedure, of dependability, of efficiency, of organization. Few ideas appeal more to us than an all-embracing scheme of engineered production; a "planned economy." Almost all Americans have an "engineering complex." On the other hand, private property, freedom to experiment and invent, the right to strive for improvement,

<sup>11</sup> The writer believes he is under no serious hallucinations as to the present freedom of the consumer. Salesmanship and advertising, and window display and what the neighbors think, as well as other factors, control the consumer; but similar and equally potent forces control all human actions in a society; and, in spite of the nature of the controls at work, the individual appears to be about as free as a consumer as he is in voting, marrying, church-going, choosing a vocation, or carrying on any of the other major activities of life.

and the freedom of individual choice are parts of most of us. The two ideas do not harmonize overly well. Effective "planning" in the grand manner appears to involve planning by some for the many. If America is ever ready for the great economic strategy, for the supremacy of the engineered society, she will have modified greatly her faith in individual enterprise and consumer freedom. In the meantime, America embodies both faiths in a marked degree. Russia is the only modern country in which there is, as some see it, the vision and the imagination, or, as others see it, the blindness and despotism, to undertake the planning of national economy.<sup>12</sup>

*If we view the flow of orders as it actually occurs in the organization of our industrial life, we find that arrangements are various and that they may shift. For most goods the consumer places orders only momentarily ahead of the transfer of goods and title. He "goes and buys"; and yet, as is well known, the consumer may give an order for an automobile months before delivery can be expected, or make an application for the services of an educational institution, for which he believes there is considerable demand, far in advance. The retailer, wholesaler, or manufacturer may order certain supplies for immediate delivery or he may order weeks or months in advance. There is no unanimity as among individuals or trades. As orders vary in being given, so they vary in being received. It is with these variations and the shift-*

<sup>12</sup> For discussions of economic organization in Russia see Chase, Tugwell, and Dunn, *Soviet Russia in the Second Decade*; Dobb, Maurice, *Economic Development of Russia*; Nearing and Hardy, *The Economic Organization of Russia*; and Zimand, Z., *State Capitalism in Russia*.

ing basis thus furnished for planning that the next Part of this book is concerned.

### III. THE PROBLEM

Trade custom, judgments as to the balancing of risks, and a sense of business fairness, are among the forces which tend to bring about somewhat established practices in the flow of orders and in the flow of goods. These practices have a greater stability than one might imagine. Yet as conditions vary and business men see opportunities to advantage themselves, changes take place. When an accepted flow of orders or of goods is subjected to extensive changes, serious problems are raised for many business men. Certain far-reaching effects on distribution may result.

*At present there is a widespread feeling, and in some industries an intense feeling, that the practices of giving and receiving orders are being seriously modified.* These changes are caught up and expressed in the phrase "hand-to-mouth buying." Somewhat specifically, what statements and complaints are made? They include the declaration that orders are not given so far in advance as was formerly the case, or that so large a proportion is not placed so far in advance, or that none is placed in advance. There is complaint that goods will not be accepted in shipment as far in advance of seasons as before; or that so large a number of them will not be accepted, or that they are demanded in small lots through the season or the year with attendant increased costs. Both orders and shipments are said to be given on a

hand-to-mouth basis. The failure to order in advance and the practice of ordering in small lots is said to require that the manufacturer and others "farther back along the line" have supplies making possible ordering from stock. This means, it is said, that far larger inventories must be carried.

If these are statements of fact, they are indeed of concern to business men. But they are also of concern to society. If orders are placed less far in advance, is not the organization of our whole productive process weakened? Does it not lead to an inability to plan ahead, which results in poorer adjustments, less effective use of resources, more idle factory time, more unemployment, more risk and loss?

On the other hand, if shipments are in small units but in a more or less continuous stream, is not the flow of goods more uniform and industry more stable? From such a possible stabilization is there not better use of the transportation facilities and of the productive equipment of the country? Are there not smaller inventories and quickened turnover and the accompanying social economy of goods in process?

Moreover, if it is true that all these things are occurring, certain inferences may be drawn which are worth testing. If orders are placed less far in advance, if they are placed in small units and recurrently, it may be that there is an elimination of a former seasonality, and that the flow of orders through trade has become more uniform through the year and more stabilized. If orders are placed for small lots and shipments are demanded

in small units, it is possible that this has had a steadying effect on trade, that the flow of goods through trade has become more uniform and more stabilized. So also with inventories. If in former periods inventories piled up preparatory to certain seasonal shipping dates but have now been replaced by inventories which must meet a steady demand for continuous small-lot shipments, stocks of goods may have become more stabilized.

Aside from these matters, some attention must be given to the effects of changes in the size of orders and changes in the period of ordering, if these exist, upon methods of distribution. The effects on costs and who pays them, and the effects on the position of various middlemen need to be considered. Finally, there must be a consideration of the probable permanency of such changes as have taken place.

Hand-to-mouth buying is indeed a social as well as a business problem. It is the purpose of this study to keep in mind both the business and the social aspects of the problem, but to approach it through a study of those business symptoms of which there is complaint.





**PART II**  
**THE EVIDENCE**



## **A. THE ORDER BASIS OF INDUSTRY**



## CHAPTER III

### THE ORDER BASIS OF INDUSTRY: THE CONCEPT

In our economic world, where individuals decide what production shall be carried on, there are, as has been indicated, two bases upon which they may build their plans. One is "observation" of the markets. It is possible to calculate, roughly at least, from prices being paid for products and from prices at which materials and labor can be bought, the kinds and quantities of goods that it will be profitable to make or purchase for sale. A second method is to secure orders in advance and make goods to order. With orders in advance, business men may pre-plan with some security; they may organize programs of production, schedule borrowings and expenditures, and engage employees.

*A period of hand-to-mouth buying is a period in which one of the bases of industrial pre-planning is weakened.* That advance orders have been falling off is one of the most common connotations of the phrase "hand-to-mouth buying" as the business man uses it. With a falling off in futures buying, so say business men, go certain consequences: there is uncertainty; goods, if made in advance, must be made for stock; manufacturers must carry unprecedented inventories. These are all matters with which any business may well be concerned. But orders in advance may be looked at also from the point of

view of industry as a whole. So viewed, a single unfilled order means that some part of our industrial machine has been committed to a certain activity. So viewed, the *total* of unfilled orders reflects the total amount of activity which has been agreed upon. So viewed, the total of unfilled orders reflects the extent to which industrial plans, *which relate the specialized business units, one to another*, have been determined upon; they show the measure to which individual businesses are, at a given moment, tied into a system.<sup>1</sup>

It follows that a change in the amount of unfilled orders is of social as well as business concern. More hand-to-mouth buying in the sense of less futures buying means a lessening of the pre-planning in industry generally; a loosening of the ties that bind the many economic units into one. If all other conditions remained the same and unfilled orders fell off, it would indicate that there was a weakening of what may be called *the order basis of industry*.

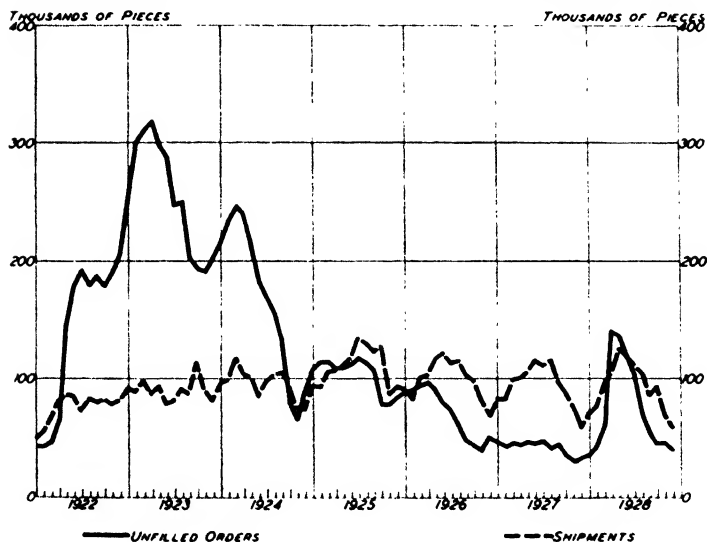
*Unfilled orders used alone are an unsatisfactory measure of industrial pre-planning.* They have been extensively so used however. Particularly popular has been the record of unfilled orders of the United States Steel Corporation as a measure in business forecasting.

The assumption behind such use is that the amount of unfilled orders measures the productive activity which

<sup>1</sup> It must be remembered, of course, that unfilled orders may be cancelled. The degree to which this occurs when a less promising business outlook presents itself varies greatly from industry to industry. It depends not only upon the law concerning execution of contracts but also upon customs in the trade, the type of persons common in trade, and the seriousness of the changed conditions.

will take place in the industry. Such is often a mistaken assumption, however. An increase of unfilled orders may indicate a subsequent increase in production and sales, or it may indicate only that there is a larger amount than before of advance ordering in proportion

COMPARISON OF UNFILLED ORDERS WITH SHIPMENTS  
Enameled Ware Baths, January 1922-December 1928



to the amount of business which will actually be done.<sup>2</sup> A smaller amount of unfilled orders at one time than at another may indicate a subsequent decrease in shipments, or it may mean only less advance ordering in proportion to the shipments which follow. Unfilled

<sup>2</sup> The unfilled or advance orders on a company's books may be increased by an increase in the number of orders received for the customary period in advance, or by an increase in the period of ordering ahead or by a combination of these.



orders may be declining while shipments are steadily improving. How futile would be the attempt to estimate shipments from unfilled orders is shown in the chart on page 33.<sup>3</sup> Moreover, advance orders are not all equally far in advance, and the length of time makes a difference in the inferences that can justifiably be drawn from observations of the amount of unfilled orders.

*Better than unfilled orders as a measure of the extent to which activity is postulated on commitments is the ratio of unfilled orders to the activity which follows.* Probably the best measure is the ratio of unfilled orders to shipments, or sales in the sense of shipments. Where lack of data makes this comparison impossible, other activity figures are useful. For example, the ratio of orders to production is in certain cases a good indication of the order basis.<sup>4</sup>

The commitments made in advance are usually recorded in one or both of two places. On the books of the company making the sale they appear as unfilled orders; on the books of the concern making the purchase they may be set down as orders outstanding. For a considerable number of industries advance commitments have been compiled by certain public agencies.<sup>5</sup> For

<sup>3</sup> Data are unfilled orders on hand at the end of each month and shipments during the month of enameled ware baths, as reported in the *Survey of Current Business*.

<sup>4</sup> While several methods of measuring the order basis have been employed in this study, the ratio of orders to shipments has been employed wherever possible.

<sup>5</sup> The U. S. Department of Commerce has, for a number of years, gathered these statistics; the Federal Reserve Board has carried on the work less extensively in certain fields of trade. Trade associations have also collected figures from their members which in some instances are valuable direct sources and in many cases have been included in the Department of Commerce figures.

the purpose in hand, data from a large number of individual companies have also been obtained. Where the number of individual companies in a single industry is considerable these data have been compiled for presentation.\* In other cases the experiences of individual concerns are shown separately.

*A study of hand-to-mouth buying thus leads to a study of the degree of pre-planning among industries.* Of particular concern are the changes in this situation during the so-called hand-to-mouth period, commonly spoken of as beginning with the collapse of activity in 1920 and continuing through the present. What has been happening to the order basis of industry? Has the business man's basis for making plans been improved or impaired? Has the contractual integration of our industrial mechanism been growing stronger or weaker? Have the changes during the period been uniform in trend or have there been variations in tendency? Have such changes as have occurred been similar in various industries? So far as data make it possible to say, how do the recent and current situations compare with the pre-war situation?

It goes without saying that in studying this matter a sampling method has been necessary. By no means all industries are represented, but the variety is reasonably satisfactory.

\*The courtesy of the National Canners Association and its membership has made it possible to secure information from a large number of canning companies.

## CHAPTER IV

### THE ORDER BASIS: CERTAIN INDIVIDUAL COMPANIES

A study of the order basis of industry is best begun with certain individual companies concerning which some detail can be given. Specific cases serve better than composite industry pictures to illustrate the concept. Moreover, the records of the companies used have great significance either because of the outstanding importance of the concern in the industry, or because there is reason to believe that the specific case is typical of the industry, or for both of these reasons.

#### I. A LARGE SHOE COMPANY

The experience of one very large shoe company is first to be studied. This concern sells shoes for men, women, and children through hundreds of dealers scattered widely over the country. While not disregarding style, the company's emphasis is upon staple lines.<sup>1</sup>

<sup>1</sup>The data presented were obtained directly from the officers of the company concerned, the courtesy of whom can be acknowledged only in anonymity, as it was their wish that the company's identity be not disclosed.

Conference and correspondence with many shoe companies and shoe trade association officials indicate that this company's experience is a very general one. One concern selling "high" style merchandise gives a report somewhat at variance with the record of this company.

To understand the experience of this company, it is necessary to be familiar with a merchandising policy or practice which has for many years obtained with reference to a large part of its business. This practice consists of the solicitation in the late summer and fall of orders for spring goods (that is, goods to be sold by the retailer in the spring), the opening shipping date for which, from the factory, is December 1. For fall goods—that is, goods to be sold by the retailer in the fall—the practice consists of solicitation of orders beginning with January, and with the opening shipping date on May 1. The company's agreement with its customers on such orders postpones the requirement of payment until the heaviest part of retail selling is over. The business so handled is for this reason conveniently referred to as the "future payment business." With arrangements thus made, it follows that upon the opening shipping dates—namely, May 1 and December 1—of each year this company may have on hand orders which have been booked over a series of months and which as they accumulated formed an order basis upon which the company could plan its operations.

What, if anything, has happened to these advance bookings? Have orders taken in advance of opening shipping date continued to be as large a part of the year's net shipments as was formerly the case, and have such orders been secured as far in advance as before?

*The evidence shows an extreme falling off in advance bookings.* When 1927 and 1928 are compared with the

earlier years, the table on page 39 shows that an almost revolutionary change has taken place. In 1916 orders for spring goods, for example (those which were sold by the retailer in the spring of 1917), were taken in such a way that 8 per cent of the year's net shipments were secured four months in advance of opening shipping date (December 1, 1916), 10 per cent more three months in advance, another 10 per cent two months in advance, and 6 per cent more one month in advance. A total of 34 per cent of the year's net shipments were thus on the books as orders for spring goods one month in advance of the opening shipping date. In 1918 and 1919 no orders for spring goods were secured four months in advance of opening shipping date, but large advance bookings were secured two or three months ahead. In 1928 there were no orders four months in advance, no orders three months in advance, only 1 per cent of the year's net shipments two months in advance, and 1 per cent taken just one month in advance. If we examine the total bookings of spring goods, it appears that in 1919 there were 58 per cent of the year's net shipments on the books of this company at least one month in advance of opening shipping date, while in 1928 there were only 2 per cent as an order basis one month or more in advance.

A comparable situation obtained for fall goods, as the second section of the same table shows. The summary for a year's goods in the last section of the table presents the relation of total advance bookings to the year's business.

## ADVANCE BOOKINGS, 1916-1919, 1927-1928 \*

(Bookings for indicated period in advance of the opening shipping date, expressed as a percentage of net shipments for respective calendar years.)

## I. Spring Goods, Booked in Advance of December 1 of Preceding Year

Length of Period	1916	1918	1919	1927	1928
4 months.....	8	0	0	0	0
3 months.....	10	13	18	0	0
2 months.....	10	10	30	1	1
1 month.....	6	5	10	4	1
Total, 1 month or more.....	34	28	58	5	2

## II. Fall Goods, Booked in Advance of May 1 of Given Year

Length of Period	1917	1918	1919	1927	1928
4 months.....	1	1	1	0	0
3 months.....	12	5	1	0	0
2 months.....	11	19	15	1	2
1 month.....	7	14	19	2	6
Total, 1 month or more.....	31	39	36	3	8

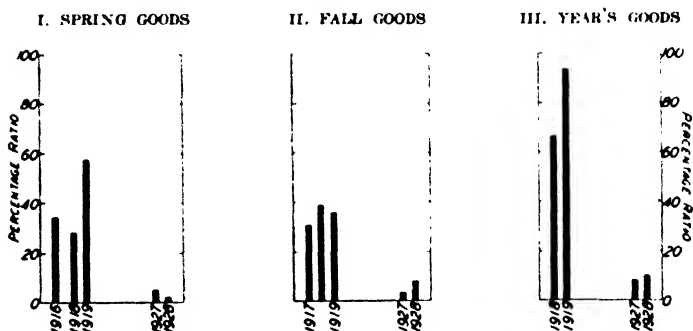
## III. Year's Goods, Booked in Advance of Opening Shipping Date

Length of Period	Last Half of 1916	First Half of 1917	1918	1919	1927	1928
4 months.....	8	1	1	1	0	0
3 months.....	10	12	18	19	0	0
2 months.....	10	11	29	47	2	3
1 month.....	6	7	19	27	6	7
Total, 1 month or more.....	34	31	67	94	8	10

\* Data for advance bookings cover the last six months of 1916, the first six months of 1917, and the years 1918, 1919, 1927, and 1928.

In the chart on this page is shown graphically the advance bookings which have just been described in detail. The bars show the relative amount of orders for spring goods, fall goods, and year's goods on hand at least one month in advance of the opening shipping dates.\*

VARYING ORDER BASIS FOR A LARGE SHOE COMPANY  
(Bookings received one month or more in advance of opening shipping date expressed as a percentage of net shipments for respective calendar years)



The most important change, when 1919 is compared with 1918, is the increase in total advance bookings. In 1919 more than two-thirds of the company's business was booked at least two months in advance of the opening

\*Both in this chart and in the table discussed above, advance bookings are expressed as a percentage of the net shipments of the year in which they are taken. This method of expressing the order basis, while the only one available, is open to some criticism, particularly for spring goods, not all of which are included in the year's shipments with which advance orders for them are compared. The error, however, is not serious, as the heavy shipments of spring goods in December place a considerable part of such goods in the calendar year in which advance orders for them are taken.

shipping date, and 94 per cent was booked one month or more in advance. In 1927 there were no orders either three or four months in advance, only 2 per cent two months in advance, and a total of only 8 per cent as much as one month in advance of opening shipping date. In other words, a very large part of the business which the company formerly handled through advance bookings had fallen into the class of "current business."<sup>\*</sup> This condition continued through 1928.

The data just examined give us a vivid picture of the relative amount of advance bookings obtained in several

<sup>\*</sup> An officer of the company gives the following comments on the advance booking experience of 1916-1919. His observations that the earlier years are approximately "normal" make all the more interesting the change in 1927.

The last six months of 1916 and the first six months of 1917 are the oldest records available covering the information shown. It is believed, however, that the advance bookings in these two periods were reasonably close to the normal condition during the pre-war years of 1912 to 1915.

While it is true that a rapid price advance occurred during 1916 and 1917 and this would seem to have stimulated advance bookings and made these greater than normal in these two years, it will be noted that the year 1918 does not show a very different condition. In this year of 1918 there was very little price change.

Starting in 1918 at about the level existing at the end of 1917, prices fell off almost 10 per cent during the second and third quarters, then recovered in the last quarter to a point slightly in excess of the starting level. On account of the price situation, it is felt that there would have been no special incentive toward advanced bookings during the year 1918. For this reason the advance bookings actually made appear to have been the result of regular habits existing over a long period of time. This, taken together with the 1916-17 figures, would seem to indicate that these first two years show about the normal situation with respect to advance bookings in the pre-war period.

The year 1919 is shown as being typical perhaps of an abnormal year with respect to advance bookings. This was, no doubt, due to the rather spectacular price advance which occurred during this year. This is rather borne out by the fact that the larger advance bookings occurred almost entirely during the last six months of this year.

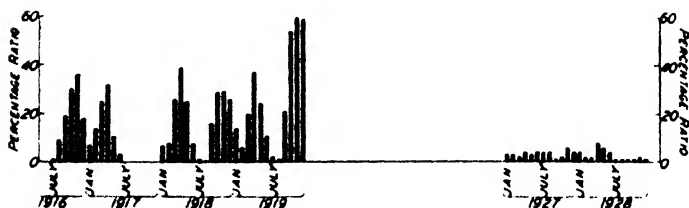


years for that large section of this company's business which is called its future payment business. Additional information makes it possible to compare the advance orders on hand at the close of each month for several years.<sup>4</sup> Such a comparison enables us to see to what degree, if any, advance ordering for all the company's business has changed in its distribution through the year. Particularly, we may ask, was there the same seasonal cumulation of advance orders in 1927 and in 1928 that existed in earlier years?

*The seasonal cumulation of orders noticeable in the earlier years had disappeared in 1927 and 1928. A*

#### DISAPPEARANCE OF SEASONAL PEAKS IN ADVANCE ORDERS OF A LARGE SHOE COMPANY

(Orders on hand at close of indicated month, expressed as percentage of net shipments for the respective calendar year)



glance at the table on page 43 and the chart on this page makes this strikingly apparent. Considering the situation in 1916, one observes that at the close of July there were only a few advance orders on hand. During the next four months salesmen were securing business which

<sup>4</sup> The fact that these data are concerned not only with the future payment business, but with other business as well, makes them not strictly comparable with those discussed above.

was being freely placed in advance, and orders cumulated to a peak in November, declining abruptly when heavy shipments began on December 1. In the next year orders for fall business were solicited beginning in January, and such orders given freely for advance shipment, cumulated to another seasonal peak in April.

#### ADVANCE ORDERS, BY MONTHS

(Orders on hand at close of indicated month expressed as a percentage of net shipments for respective calendar years)

	1916	1917	1918	1919	1927	1928
January .....	...	7.23	7.33	13.67	2.91	4.46
February .....	...	13.98	7.93	5.82	3.02	2.08
March .....	...	25.01	25.67	19.75	1.63	2.51
April .....	...	32.37	39.28	37.23	3.75	8.38
May .....	...	10.68	24.73	23.72	3.22	6.18
June .....	...	2.64	8.16	11.26	3.90	4.38
July .....	1.47	..	.78	2.31	3.69	1.16
August .....	8.58	..	.18	.69	3.50	1.20
September .....	18.95	...	15.67	20.93	1.45	.69
October .....	29.78	...	28.51	53.82	1.92	.89
November .....	35.86	...	29.48	59.84	5.53	2.03
December .....	18.09	...	25.54	58.64	4.04	.64

They were again sharply reduced by the heavy shipments starting in May. The 1918 and 1919 pictures are different only in detail. Worth noticing are the enormous volume of orders in the last three months of 1919 and the apparent fact that so many were received in December of that year that little decline was registered in spite of December shipments.

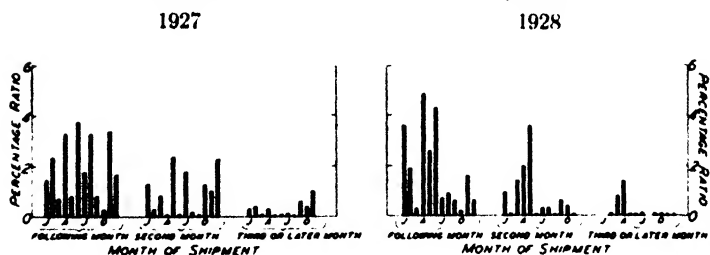
But what of 1927 and 1928? Four facts stand out concerning 1927. (1) The advance orders on hand at the end of each month varied but little. (2) There were no accumulations of advance orders comparable to those in the former periods; buyers were placing their

orders close to shipping date. (3) Consequently there was no seasonal placing of orders for *future delivery*. (4) Orders in 1927 furnished only the most fragile basis for planning production for more than a brief period ahead of shipment. In 1928 orders on hand were much more uniformly distributed through the year than in the period 1916-1919 but somewhat less so than in 1927.

How frail was the basis for future planning is emphasized in the chart which follows and the table on

PAUCITY OF ORDERS MORE THAN ONE MONTH IN ADVANCE OF  
SHIPMENT, 1927 AND 1928

(Orders on hand at end of indicated month as a percentage of net shipments for the respective years)



page 45. It will be seen that the orders to be shipped in the "second" and in the "third or later months" ahead are few indeed. In point of fact, at the end of December, 1927, of January, 1928, and of August, 1928, there were no orders on hand for shipment after the "second month."

One conclusion must *not* be drawn, namely, that order placing has become less seasonal. What has happened is a shifting of the seasons of ordering to correspond more closely to the seasons of shipping. A study both of this

company and of others, which was made, shows that shoe *shipments* still have a definitely seasonal movement. This fact coupled with the data here shown necessitates the conclusion that there is a seasonal flow of orders but that *it is now close to the flow of goods—indeed so close to it that a large part of the orders are filled during the month received.*

ADVANCE ORDERS, 1927 AND 1928, WITH DESIGNATED MONTH OF SHIPMENT

(Orders as a percentage of net shipments for the respective year)

Orders on Hand at Close of:	Following Month		Second Month		Third or Later Month	
	1927	1928	1927	1928	1927	1928
January.....	1.38	3.60	1.27	.86	.26	—
February.....	2.38	1.94	.26	.07	.38	.07
March.....	.67	.30	.83	1.41	.13	.80
April.....	3.34	4.93	.13	2.02	.28	1.43
May.....	.81	2.61	2.37	3.55	.04	.02
June.....	3.78	4.33	.07	.03	.05	.02
July.....	1.82	.70	1.80	.32	.07	.14
August.....	3.28	.91	.18	.29	.04	—
September.....	.81	.56	.05	.04	.59	.09
October.....	.27	.19	1.29	.56	.36	.14
November.....	3.41	1.59	1.07	.43	1.05	.01
December.....	1.74	.60	2.30	.03	—	.01

## II. A MANUFACTURER OF WOMEN'S HOSIERY

Figures showing changes in advance orders for women's hosiery have been obtained from an important manufacturer.\*

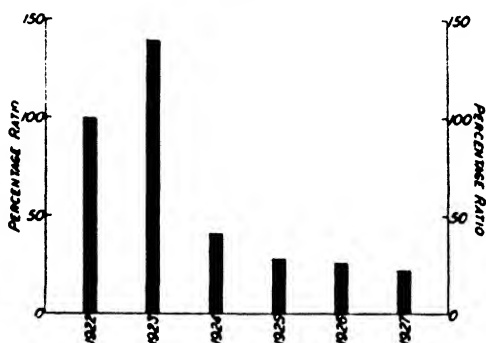
*In recent years this company has obtained fewer advance orders than formerly and those less far in advance*

\*While the aid of the president of this company is hereby acknowledged, the name of the company may not be published.

*of shipping date.* The ratio of advance orders to total business done by this company has declined steadily since 1923.\* (See chart on this page.) A very large part of this drop, however, is between 1923 and 1924. In the

DECLINE IN ORDER BASIS FOR A MANUFACTURER OF WOMEN'S  
HOSIERY, 1922-1927

(The ratio of advanced orders to shipments in 1922 was taken  
as 100)



year 1923 this company secured a considerably larger part of the year's shipments in advance orders than it had in 1922. As we shall see in examining subsequent material, this is in line with the movement in many other industries.

The tendency for advance orders to be placed less far ahead has been most noticeable since 1924. This tendency may be seen in the table on page 47, where total advance orders on hand June 1 of each year are divided

\* Advance orders (that is, orders to be delivered a month or more after the receipt of the order) on hand June 1, were used in place of total advance orders. The ratio of advance orders to total volume of business is expressed relative to 1922 = 100.

into those which were placed for various periods ahead. Prior to 1924, orders one month and two months in advance were a larger part of the advance orders of this company than they have been in recent years. So far as placing advance orders less far in advance is an evidence of hand-to-mouth buying, this company, therefore, was experiencing the condition to a greater degree in 1922 and 1923 than during recent years.

**NUMBER OF HOSE ON ORDER JUNE 1, TO BE SHIPPED IN INDICATED MONTHS**

(As a percentage of total number on order June 1, to be shipped on or after July 1)

Month Orders are to be Shipped	1922	1923	1924	1925	1926	1927
July.....	22.4	18.4	11.2	13.1	10.9	15.2
August.....	26.8	29.3	8.1	16.3	17.9	18.8
September.....	29.6	26.2	10.5	15.1	30.3	38.0
October.....	11.1	15.8	7.5	11.3	10.7	12.8
November.....	2.8	4.8	3.3	5.0	3.0	1.4
December.....	.4	.9	.2	1.3	1.0	.4
Unspecified.....	6.9	4.6	59.2	37.9	26.2	13.4

The changes shown above, however, do not tell the whole story of what has happened in the relationship of orders and delivery. The company is now receiving a large number of orders which require such prompt shipment that they do not appear at all on its books as advance orders (one month in advance of shipment). An officer of the company writes: "Prior to 1924, three and four weeks delivery would not cause complaint from our customers. Two weeks constituted good delivery prior to 1924. In 1925 one week or ten days was considered good delivery, and even now that is fair delivery. However, during 1926 and 1927 the bulk of our orders

went out in the wholesale trade within three days after the receipt of the order, and the maximum for the average order is about one week."

In the past three years, then, there has been less placing of future orders; the future orders placed have tended to be placed less far in advance; and, at the same time, the period within which shipment is expected for orders not considered advance orders has been greatly shortened.

### III. A MANUFACTURER OF MEN'S CLOTHING

One of the largest manufacturers of men's clothing, by supplying data, has made it possible to study advance orders, net shipments, and the ratio of these for the period from 1912 to 1927.<sup>1</sup>

*Advance orders were a greater proportion of shipments in 1926 and 1927 than in any of the five preceding years.* (See chart on page 49.) Such an experience is quite out of line with that of the two manufacturers previously studied. Indeed, this company's experience with advance orders has averaged better since 1920 than between 1914 and 1920. During the period 1921 to 1926 the percentage of its business which was ordered in advance was never less than 72 per cent and never more than 75 per cent. In 1920 it had advance book-

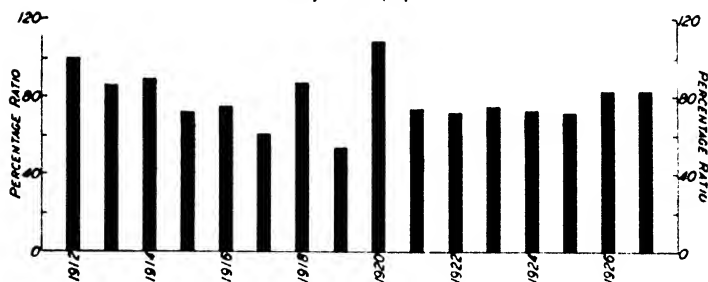
<sup>1</sup> The figures reflect the actual business done by the company with 35 accounts representing all sections of the United States. The company has not designated how long before time of shipment an order must be received to be called an advance order, but has applied the same standard through the period. The officer of the company furnishing the figures has asked that the company's name be not published.

ings of 109 per cent of the shipments made. This anomalous situation is explained by the heavy cancellations which occurred after orders had been placed.

*The variations from year to year are due to various causes.* The company explains, for example, that 1912 was a year of great advance ordering followed by cancellations, with the result that advance bookings were

VARYING ORDER BASIS FOR A MEN'S CLOTHING MANUFACTURER,  
1912-1927

(Advance orders as a percentage of net shipments of corresponding year)



more than 100 per cent of shipments. In 1915 the advance bookings were lower than in any of the three preceding years and, according to the company, were very low until late in the season. Buyers held off but came in heavily just before shipping date. The chart shows for 1917 a rather low percentage of advance orders. As a matter of fact, the company received what they regarded as good advance buying in that year; but after shipping had begun, retail sales went so far beyond the expectations of dealers that a large number of "fill in" and



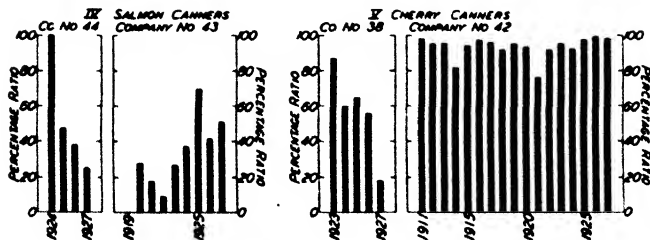
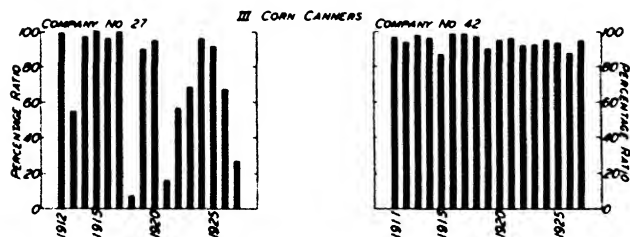
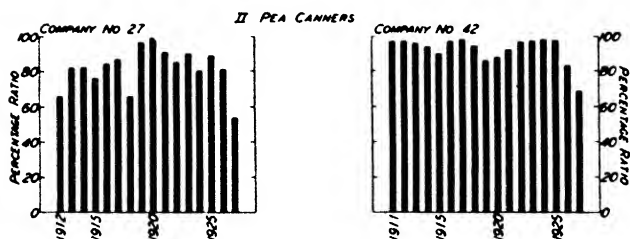
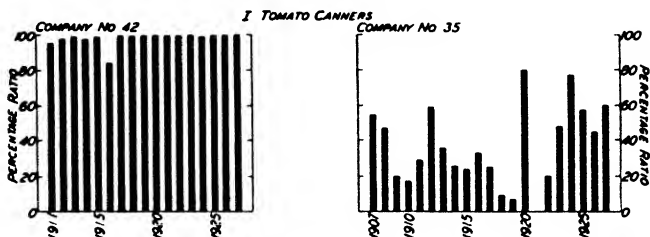
“repeat” orders were placed. This swelled the shipments of the company and caused the advance bookings to appear small as a proportion of shipments. In 1919 the history of 1917 was repeated. There was heavy advance buying, but again the amount of goods needed by retailers far exceeded their expectations and gave rise to heavy “fill in” buying. The company’s experience in 1920 has already been explained.

The merchandising policy of this company may account for its success in obtaining advance orders. This concern for many years has advertised extensively. Its goods are known and accepted as quality merchandise. It is one of those companies which have established consumer acceptance, if not consumer demand. Dealers handling its goods are carefully selected, ordinarily carrying little competing merchandise, and count their own success as identical with their success in selling this company’s goods. Under such conditions postponement of placing orders would seem to be of little concern to dealers. In the experience of this company there is possibly the moral for business that advertising lessens the probability of hand-to-mouth buying and for society that advertising may improve the pre-planning of industry.

#### IV. INDIVIDUAL FOOD CANNING COMPANIES

In the canned food industry complaint of declining future buying has been very prevalent. Access has been had to the records of a large number of canning companies, which make it possible to show, for a long series

# VARATIONS IN THE ORDER BASIS AMONG FOOD CANNING COMPANIES (Futures as a percentage of sales of corresponding year)



of years, for certain individual packers of various food products, the percentages which "futures" were of shipments.\* As canners must carry out their entire production program in a short season, an order basis as furnished by their future sales or advance orders is particularly important to them.

*The order basis upon which food canners have operated has varied greatly from company to company and from year to year.* The basis upon which individual companies have planned is best seen by observing the charts on page 51, which show the percentage of business for which orders were received in advance by two tomato canners, two pea canners, two corn canners, two salmon canners, and two fruit canners. The differences between individual companies are not to be explained in terms of size, as all are regarded in the trade as concerns of good size. In most cases they are to be explained only by the general conditions of the trade. But the success of certain companies in continually securing a large amount of advance orders is usually the result of having established comparatively fixed relationships with their buyers. These connections are to some extent, and in certain instances almost wholly, based on an ability and willingness to produce a good grade of goods of a uniform quality. Wholesalers, or other large buyers, who in turn have an established clientele for a certain quality of goods, do not hesitate

\* These records were obtained from the replies to a questionnaire which was sent to members of the National Canners Association. Each company which replied was given a number which will be used to designate it wherever its record appears in the ensuing discussions.

to make contracts in advance. Indeed, certain wholesalers who specialize in high quality are emphatic in pointing out that they must place orders in advance to assure themselves of their requirements.

Just following the war these companies all experienced a drop in the percentage of future orders. Some, however, were affected far more seriously than others. A number of them show a bad period in 1913 or 1914; a majority saw poor advance buying in 1921; while six out of the ten show a falling off in future business in 1927. But the differences even in the similarities are interesting. Even in the years when several move in the same direction, some move much farther than others. Observation of these companies must not be translated into a general picture of the canning industry (a more general statement will be made later on page 73), yet the variations in the histories of individual companies noted above do give place on some occasions to uniform movement.

## V. A LARGE STEEL MANUFACTURING COMPANY

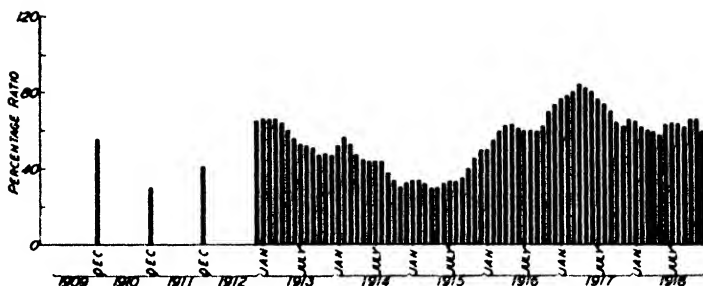
Material has been obtained from a leading steel manufacturing company which has made possible the calculation of its order basis.\* Its prominence in the field makes its record of significance. There is good reason to believe that the experience of this company is like that of others in the industry. As the history extends from 1910 through 1927 it is possible not only to see what has

\*The data were in part secured from officers of the company and in part from *Poor's* and *Moody's Manuals*. The company has asked that it be not identified.

happened in the post-war period but to compare that period with the pre-war and war years.

*This company has experienced a "new era" in its order basis since 1923.*" (See chart on pp. 54-55.) To some extent the new period is evident from the end of 1921. What is this "new era"? It is a period when the ratio of unfilled orders to shipments is unlike any-

ORDER BASIS FOR A LEADING STEEL MANUFACTURING  
(Unfilled orders at the end of each month as percentage



\* For the years 1909-1912 the ratio is for December

thing that occurs elsewhere in the eighteen years studied. The new features are:

1. There is a longer continuous downward trend of the order basis (four and a half years) than has occurred elsewhere during the 18-year history.

2. The average of the order basis for the period is far lower than it has ever been before for a similar number of years. Indeed, its average is lower from 1924-1927 than at any other time, excepting December, 1910.

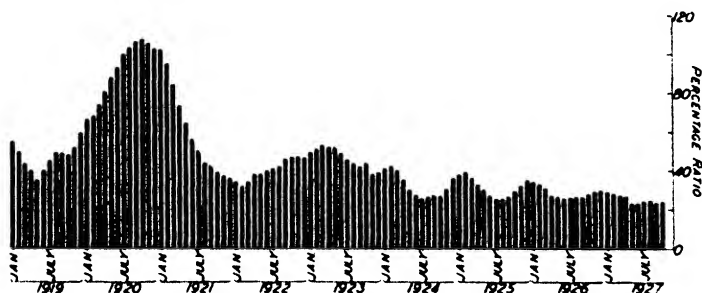
\* Order basis is measured in this case by unfilled orders at the end of each month expressed as a percentage of total shipments for the ensuing twelve months.

3. The cyclical movement which appears to have been the most pronounced characteristic of the order basis prior to 1922, and possibly until 1924, has disappeared.

4. A clearly defined seasonal movement of order basis began with 1924 (possibly with 1923) and continued through 1927. There was some tendency for this to flatten out in 1926 and 1927.

COMPANY, DECEMBER 1909-OCTOBER 1927 \*

of estimated shipments for the ensuing twelve months)



only, monthly shipments not being available.

If we examine the order basis for the years before 1923, the cyclical swings—as has been suggested—are the most noticeable features. Between 1910 and 1922 three cycles were completed. In each successive case the peak rose higher than ever before. At the end of October, 1920, at the highest point reached in the record, the order basis was 106.9 per cent; that is, there were more orders on hand than were filled during the twelve months following. This peak was followed by a rapid decline to a low in 1922 (the order basis had been

slightly lower in 1914 and in 1915 and, as noted, has frequently been lower since) and a moderate rise to March, 1923. Then begins the period of gentle but steady decline through 1927, which has already been discussed.

Shipments of steel also have, since 1923, a definite seasonality not to be found elsewhere in the record. This seasonal movement, clearly beginning with 1924, and observable to some extent in 1923, shows shipments rising rapidly in January, sometimes slowing down or falling off in February (perhaps due to the shorter month), and rising again to a peak for the year in March. From this high point shipments declined gradually to a low, which is in December in three of the five years of the period 1923-1927. In 1924 and 1925 it is in July. In each of these two years the improvement was less rapid during the autumn than it was after the turn of the year.

The experience of this company furnishes a most striking example of an extended change in order basis in what has been called the hand-to-mouth buying period. It is a change which may well have the most careful study by those forecasters who find significance in unfilled orders for steel or indeed for any other commodity. There is strong evidence that the movement of unfilled orders corresponds (since 1923) much more closely to the shipments curve than ever before. Moreover, there has been since 1923 a regular lag of shipments behind unfilled orders of approximately one month. Nothing approximating either of these observations can be made from the data prior to 1923.

It is clear that no single conclusion concerning the order basis will accurately state the experience of the five commodities studied. What has been most strikingly true for the companies manufacturing shoes, hosiery, and steel has not been true for the manufacturer of men's clothing and was not true for every canning company studied. General conclusions may well be deferred until after the examination of the order basis of a number of industries, which is undertaken in the next chapter.



## CHAPTER V

### THE ORDER BASIS: CERTAIN INDUSTRIES

A study of the order basis of individual companies indicates the differences and similarities which occur from industry to industry, from company to company, and from year to year. They reflect the vicissitudes which confront business men in their efforts to plan their activities. Necessarily, however, the experiences of many businesses must be combined into a composite picture, if one is to make generalizations concerning the order basis in various industries, or in industry as a whole. The making of such composite pictures of the order basis in some fourteen industries is attempted in this chapter.<sup>1</sup> These industries, large in themselves, and embracing many businesses, may to advantage be thrown into some half dozen groups, and under such groupings they will be considered.

<sup>1</sup> The sources of unfilled orders and shipments data which were used to compute the order basis ratio for each industry will be indicated where the industry is discussed. In every case, except where otherwise specified, these data are published in the *Survey of Current Business*. The order basis in every case in this chapter, excepting in the section pertaining to canned goods, is computed by dividing unfilled orders at the end of each month by total shipments for the ensuing twelve months. Advance orders are placed for shipments which are to follow; and while the period during which they follow no doubt varies somewhat from industry to industry, it is believed that the period used is as satisfactory as any which might have been chosen.

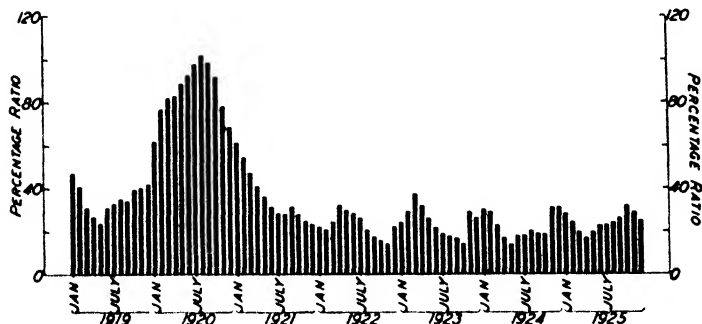
## I. THE ORDER BASIS FOR IRON AND STEEL

The several commodities which have been grouped in the iron and steel industry show sufficiently different trends to make it advisable to deal with them separately.

*Variation rather than uniformity is shown among the samples.* The order basis for merchant pig iron shows a definite downward trend.<sup>3</sup> (See chart on this page.)

### ORDER BASIS FOR MERCHANT PIG IRON, 1919-1925

(Unfilled orders at the end of each month as a percentage of shipments for the ensuing twelve months)



From slightly under 25 per cent in 1919, orders accumulated until at the peak in August, 1920, there were orders on hand for 102 per cent of the shipments which were actually made during the next twelve months. Then followed a decline, abrupt and almost continuous, until February of 1922. Since 1922 the

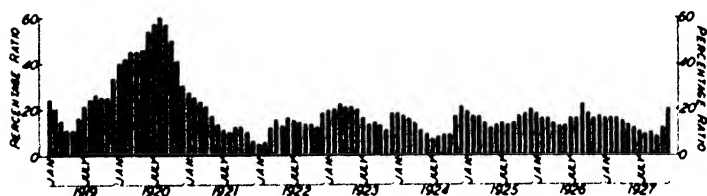
<sup>3</sup> Unfilled orders and shipments, representing about 90 per cent of the production in strictly merchant furnaces, are compiled by the American Pig Iron Association and published in the *Record Book of Business Statistics*, Part II, "Metals and Machinery," p. 18.

order basis has improved and declined with considerable regularity. During this time it has never reached more than 37 per cent—which point was almost touched in March, 1923—nor fallen below 15 per cent. The trend, however, has been a declining one. Moreover, the ratio of orders to shipments has been more stable since 1923 than in the three years preceding.

The ratio of unfilled orders to shipments of steel sheets shows a curve somewhat like the ratio for pig iron.<sup>3</sup>

#### ORDER BASIS FOR STEEL SHEETS, 1919-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



(See chart on this page.) The high, as in the case of pig iron, was reached in August, 1920, but it was less than 60 per cent. The decline also continued to February, 1922, save for a slight increase in the latter half of 1921. Since that time, however, there have been differences in the two ratios. The order basis for steel sheets is tending to become better at the point at which the data on pig iron lapses. During the last three years,

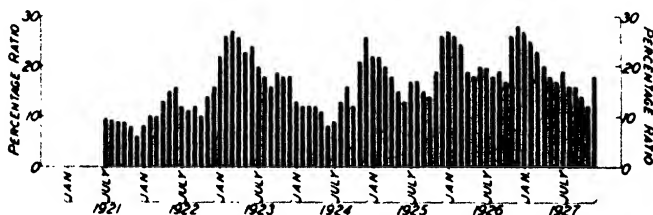
<sup>3</sup> Basic data for steel sheets—black, blue, galvanized, and full finished—representing almost all of the independent sheet-steel manufacturers are compiled by the National Association of Flat Rolled Steel Manufacturers.

especially in 1925 and 1926, the order basis for steel sheets has shown a tendency to improve.

The data for steel barrels make it possible to show the ratio of unfilled orders to shipments for the six and a half year period from July, 1921, to December, 1927.\* (See chart on this page.) From the lowest point of the series in December, 1921, the order basis for this product rose in 1923 to a higher point than it has ever reached since that time. The order basis fell from early in 1923

### ORDER BASIS FOR STEEL BARRELS, 1921-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



until the middle of 1924, rose until the last of 1926, and dropped considerably in 1927. During the three years 1924-26 the influence of the winter season is strongly marked, advance orders being high in November, December, and January. The seasonality of the order basis for this product is similar to that of the order basis for steel sheets. Manufacturers of this product, however, have through the period had a better basis for planning

\* Basic data were compiled by the Steel Barrel Manufacturers' Association, 1921-1923, from reports of from 45 to 65 per cent of the industry, and by the U. S. Department of Commerce, Bureau of Census, 1924-1928, from reports of almost the entire industry.

their operations than have the manufacturers of steel sheets.

The curves for the three iron and steel products considered are similar in certain respects. The order basis has greatly declined since 1920, though more in some than in others. It improved noticeably for each product with the improvement in business in 1923, and for each it shows a considerable seasonal movement since that time.

## II. THE ORDER BASIS FOR BUILDING MATERIALS

The order basis in the field of building materials is represented by face brick, common brick, oak flooring, and enameled ware baths.\*

*Unfilled orders for face brick have formed a more uniformly satisfactory order basis during the past few years than have those for common brick.* The order basis for face brick has been steady during the period 1925-1927, with a slight tendency downward which is particularly noticeable in the last year of the three. (See chart on page 63.) The situation has been slightly better than in 1922, but not so satisfactory as in 1923. In 1923 advance orders in proportion to shipments were greater than in any other year.

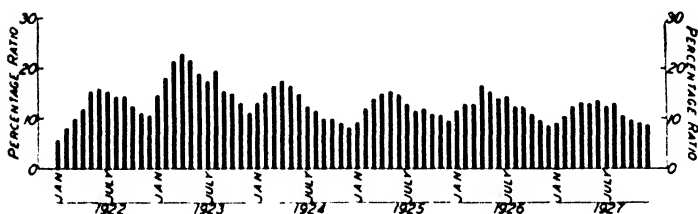
In the six years considered, the seasonal movement is very definite. Unfilled orders come in rapidly from

\* Data are those compiled by the American Face Brick Association representing about 70 firms; by the Common Brick Manufacturers' Association of America representing about 30 per cent of the total output; by the Oak Flooring Manufacturers' Association representing about 90 per cent of the industry; and by the U. S. Department of Commerce, Bureau of the Census, representing from 98 to 100 per cent of the enameled ware industry.

January through April or May and are lowest in December. Shipments start upward one or two months later and drop off usually in January or February. The order basis reaches its highest point in April or in June and reaches its lowest in December. In 1923 the improved order basis is largely to be accounted for by the increase of advance orders. Shipments advanced as compared with 1922, but forward buying increased even more rapidly. The more recent downward tendency in order

ORDER BASIS FOR FACE BRICK, 1922-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



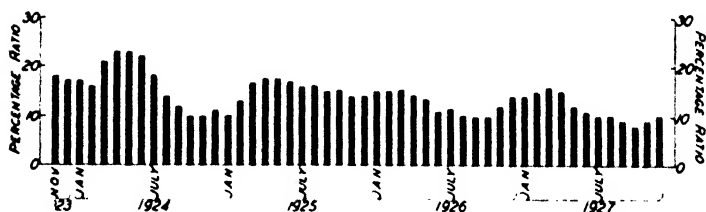
basis, particularly in 1927, was due to the fact that orders were not placed in advance to the extent that they had been in preceding years. Shipments held up, but advance orders came down, the seasonal peak for shipments being slightly higher than in any of the preceding years of the series, and the peak for advance orders definitely lower.

Unfilled orders for common brick rose rapidly from the middle of 1921 to the middle of 1923. The rise was broken by a six months' decline in the latter half of 1922, but then went forward to a point not reached since. Following 1923 the trend was downward. From

1923 on, the order basis was constantly weakening. (See chart on this page.) The cause is made clear by a study of the detailed data, which show that while unfilled orders were declining, shipments were at first increasing and later decreasing less rapidly than the unfilled orders. The seasonal movement of unfilled orders and shipments is definite. There is some slight evidence that advance ordering begins earlier than it did two or three years

#### ORDER BASIS FOR COMMON BRICK, 1923-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



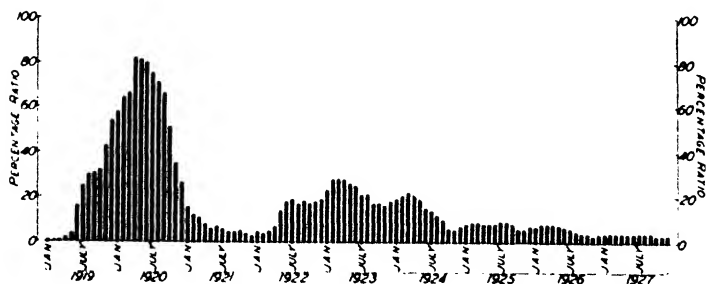
ago. The low point in 1928, 1927, 1926, and 1925 was in October or November, unfilled orders beginning to increase before the turn of the year. In 1924 unfilled orders did not begin to rise until February, and in 1923 they started upward in January. The movement of shipments usually follows the movement of unfilled orders by from three to four months. There seems to be no evidence that orders for common brick are being placed nearer to shipping date.

*Extreme changes in the order basis of an industry are shown by comparing unfilled orders and shipments of enameled ware baths. (See chart on page 65.) The*

record of this industry is the more interesting because, perhaps as well as any single product, it furnishes an index to the domestic building trade. From 1919 through 1927 the order basis in this industry has passed through four stages. During 1919 and 1920 unfilled orders rose from a very low point to one at which there were at the end of certain months orders for more than

#### ORDER BASIS FOR ENAMELED WARE BATHS, 1919-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)

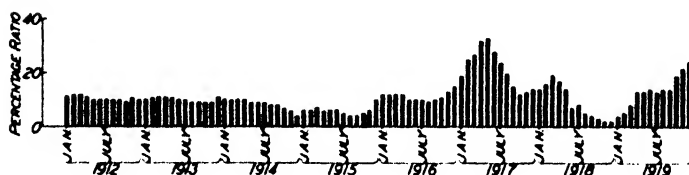


80 per cent of entire next year's shipments. During this period shipments came to be many times as great as at the early part of the period, but orders were pouring in so rapidly that they far outstripped shipments. Then came a rapid decline to a low point in December of 1921. Shipments followed a dissimilar course part of the time, rising vigorously while unfilled orders declined. There was thus a brief period in 1921 and the early part of 1922 when the order basis was extremely low, being at the end of certain months less than 4 per cent of the orders for the ensuing year.



Shipments of baths continued to increase rapidly through 1923 and into the spring of 1924, but orders again poured in even more rapidly, causing the ratio curve to rise so that at the highest point in 1923 producers had orders for nearly 30 per cent of the following year's output. Orders continued to furnish a good basis for production until the middle of 1924. From that point through 1928 a new era developed. The ratio of unfilled orders to shipments fell continuously. Unfilled orders at the end of certain months became less than

ORDER BASIS FOR OAK  
(Unfilled orders at end of each month as percentage



shipments for the same month; and during almost three years, from April, 1925, to March, 1928, the unfilled orders on the books of the industry, at the end of any one month, were only once as large as the shipments of the ensuing month. Yet the volume of shipments has not noticeably declined. The peaks have been as high or higher in every year since this situation has begun than they were in any other years of the series. It is a clear case of hand-to-mouth buying in the sense that while shipments are good, which necessarily means a good supply of orders, many of the orders are not being placed in advance sufficiently far to permit them to show

at the end of the month as unfilled orders. This condition is most striking in 1927, during which year the order basis is below 4.5 per cent every month. There is evidence of change in the late spring of 1928.

The changed order basis in this industry has been accompanied by a marked increase in seasonality of shipments. In this instance, hand-to-mouth buying has, without doubt, resulted in a less stable flow of goods than was formerly the case. Orders being placed for immediate shipment are apparently not placed until the

#### FLOORING, 1912-1927

of shipments for the ensuing twelve months)



product is needed for building purposes. The building industry, in spite of recent improvements, is still a seasonal one, and the combination of forces results in a seasonal movement of the product. In 1920, 1922, 1923, and 1924, when many unfilled orders were on hand, the product moved out with comparative uniformity. Evidently the buyers were taking the goods when they could get them, and holding them until the time of use. It would be surprising were we to discover that stocks in the hands of sellers had not increased in this recent period of ordering for immediate shipment. (See pages 247-251 for discussion of this point.)

*The order basis in the oak flooring industry is more substantial in the post-war than in the pre-war period. (See chart on pp. 66-67.) This is the more significant because the industry has become much more important. Shipments in June, 1928, were approximately ten times what they were in June, 1912.*

Hand-to-mouth buying apparently prevailed in this industry from 1912 until late in 1915. Unfilled orders at the end of the month during that period were often no greater than the shipments for the ensuing month, and in 1914 and 1915 they were frequently less. The ratio of unfilled orders to shipments was declining. Late in 1915 a change occurred. Both shipments and unfilled orders increased. Shipments in May, 1917, were more than three times as high as they had been in June, 1912; but orders had come in so rapidly that the ratio of unfilled orders to shipments for the ensuing year was higher in that month than at any point from 1912 to 1928. This condition of the order basis became less satisfactory (from the point of view of sellers) until toward the close of 1918; buying was back on a hand-to-mouth basis, and shipments were extremely low. The boom of 1919 and early 1920 gave the oak flooring manufacturers an increase of shipments and an improved order basis almost equal to that of 1917. But this position was again lost by late 1920, when orders at the end of each month fell below shipments for the same months and remained there until late in 1921. Beginning early in 1921 shipments rose rapidly and tended upward strongly until late in 1925. The forward

buying did not appear until late in 1921, and even during the boom of 1923 unfilled orders never became nearly as great in comparison to shipments as they did in 1917 or 1919. While unfilled orders were high and the basis upon which flooring manufacturers could proceed was fairly good, buyers in this field never piled unfilled orders as far beyond immediate requirements as was the case in certain other industries in the hectic post-war years. By the middle of 1926 advance ordering had become quite conservative and has continued close to the shipment line ever since. In 1927 the movement of the ratio was downward, and unfilled orders seem to indicate that the ratio in 1928 will probably average about the same as in 1927.

The situation, on the whole, is, as was indicated in the opening sentence, a better one for sellers than it was prior to the war. The ratio curve is higher. The buyers of oak flooring have, nevertheless, appeared to evidence a relatively conservative attitude even during the boom years of 1923 and 1924. The years 1915 and 1921, in this industry, are almost identical in the ratio of unfilled orders to shipments. The year 1927 shows a very similar ratio, although the business is enormously expanded in the last year. A study of the detailed curves shows how similar has been the attitude of buyers in those three periods, and this has brought about a similarity of the order basis in spite of the differences in the volume of trade concerned.

### III. THE ORDER BASIS FOR TEXTILES

Unfilled order data for the hosiery and knit underwear industries make it possible to add an industrial view of these representatives of the textile trade to the view given in the preceding chapter, by an examination of certain individual companies.\*

*The basis upon which hosiery manufacturers may plan production declined from the middle of 1925 to 1927. (See chart on this page.)* This was almost entirely due to the decline in unfilled orders, as shipments

#### ORDER BASIS FOR HOSIERY, 1924-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



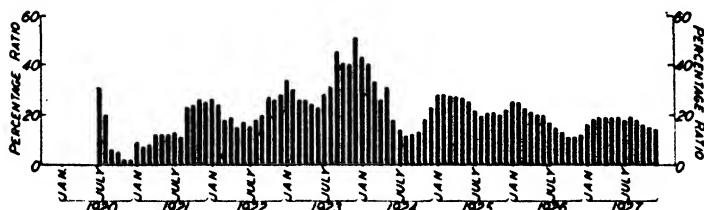
showed very little change during the period. During 1927 there was a very slight increase in order basis, but during 1928 unfilled orders dropped so much that it seems probable to suppose that the order basis will follow a similar course. There was a weakening of the order basis in the first half of 1924 and a considerable improvement in the last half of that year and the first half of 1925. These changes also are to be accounted for by the change in orders rather than the change in ship-

\* Data representing about 44 per cent of the hosiery industry and about 61 per cent of the knit underwear production are compiled by the U. S. Department of Commerce, Bureau of the Census.

ments. Indeed, the greatest improvement in the order basis which occurred in a series of years came while the shipments curve was rising. Orders on hand, however, were rising faster. Although much has been said of hand-to-mouth buying in hosiery, the charts do not show that as severe requirements are being made of vendors in this commodity as in many others. Even at times when the order basis is lowest, unfilled orders at

#### ORDER BASIS FOR KNIT UNDERWEAR, 1920-1927

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



the end of the month call for more than 10 per cent of the next year's requirements. Nor is there any time (except October, 1928) when the unfilled order curve sinks below the shipment curve. We have noted other instances where this has occurred and have drawn the conclusion that under such conditions orders in considerable part are being filled within the month of receipt. It seems certain that in this industry some companies are operating on advance orders to a much greater extent than others.

*The basis of planning in the manufacture of knit underwear has been much more varied than for the*

*commodity just discussed.* (See chart on page 71.) With considerable seasonal movement the order basis advanced steadily from 1921 to the end of 1923. This was due, as can be seen by comparing the monthly data for unfilled orders and shipments, to a great increase in orders; for shipments were also advancing during this period. Although shipments declined somewhat in 1924, there came a great drop in orders, resulting in a comparable drop in the order basis. In August, 1924, a new inrush of orders, with only a slight increase in shipments, improved the order basis. Since the spring of 1925, however, the trend has been downward. This is clearly due to less advance ordering, as shipments have not changed noticeably. There has been in this industry less placing of orders ahead after 1925 than in 1923 and 1924, but no less than there was in 1921 and 1922. Indeed, the curve of unfilled orders has never been below that of the curve of shipments excepting in December, 1920. Since the beginning of 1925 manufacturers in this industry at the end of the month have had on their books, on the average, orders for about 20 per cent of the business which was shipped in the ensuing twelve months.

#### IV. FUTURES BUYING OF CANNED FOODS

The preceding chapter furnished an illustration of the varied experiences of certain canners of food products of several types. Data have been collected, however, from a sufficiently large number of canning companies to give an idea of what has been happening to futures

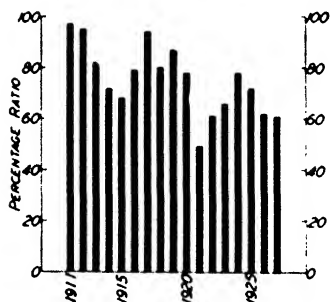
buying in all the important divisions of the canned foods industry.<sup>1</sup>

*For every type of canned foods the order basis shows a recent decline.* Yet in the year 1921 corn canners received advance orders for a smaller percentage of their sales than in any other year of the 17-year series. (See chart in this page.) However, buying of futures im-

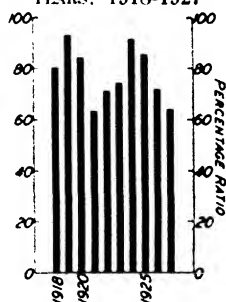
#### ORDER BASIS FOR CANNED CORN

(Future orders as a percentage of total sales for the indicated years)

I. ALL REPORTING CORN CANNERS,  
1911-1927



II. EIGHT COMPANIES REPORT-  
ING FOR THE CONSECUTIVE  
YEARS, 1918-1927



proved greatly from 1921 through 1924, but has declined continuously since. In 1927 the order basis was lower than at any other point in the series excepting 1921.

<sup>1</sup>The percentage of the year's sales sold as futures is used to measure the order basis of canning companies. Data are replies to a questionnaire sent to selected members of the National Canners Association. Each company which replied was given a number which will be used to designate it whenever its record is discussed individually. Salmon is not represented in the industries that follow, as information was obtained from only two salmon packers, and the experience of each of these with futures appears on p. 51.

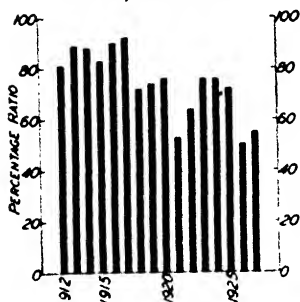


Moreover, the trend of futures buying has been definitely downward since 1911. Where the records of the same group of companies could be used for a series of years, the curves for their experience and for that of the all-companies group are very similar.\* Corn canners are justified in their belief that "futures buying is not as

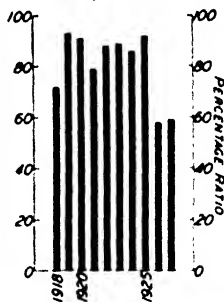
#### ORDER BASIS FOR CANNED PEAS

(Future orders as a percentage of total sales for the indicated year)

I. ALL REPORTING PEA CANNERS, 1912-1927



II. FOUR COMPANIES REPORTING FOR THE CONSECUTIVE YEARS, 1918-1927



good as it used to be." But they are not justified in the statement commonly heard, that a hand-to-mouth method of placing orders has existed since 1921 and has grown steadily worse.

The order basis for canned peas has had a downward trend since 1917. (See chart on this page.) Although

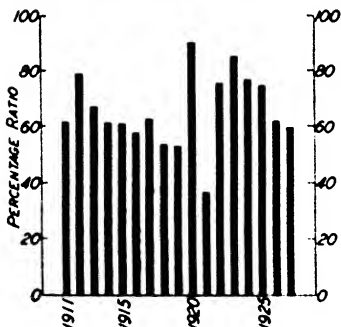
\* The records of all companies reporting in each year, 1911-1927, and of eight companies each reporting for the period 1918-1927 are shown in the chart. The combined experience of 15 companies each reporting for five years, 1923-1927 (not charted), is almost the same as that of all companies reporting for the same years.

in 1921 a smaller percentage of the pack was sold as futures orders than in any preceding year, 1926 marked the low spot for the series. In 1927 conditions were somewhat better than in 1926. Certain companies, as indicated in the curve which gives the history of four companies for the ten years 1918-1927, have been able

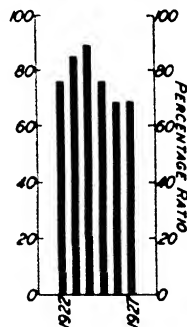
#### ORDER BASIS FOR CANNED TOMATOES

(Future orders as a percentage of total sales for the indicated year)

I. ALL REPORTING TOMATO CANNERS, 1911-1927



II. FIVE COMPANIES REPORTING FOR THE CONSECUTIVE YEARS, 1922-1927



to withstand the tendency towards less futures buying reasonably well.\* Since 1925, however, even these companies have suffered severely from postponement in the placing of orders. In buying, both of canned peas and canned corn, 1915 was a bad year for futures, but

\*The combined experience of ten companies each reporting for the five years 1923-1927 (not charted) is almost the same as that of all companies reporting for those years.

the drop was much less noticeable in the sale of canned peas than in the sale of canned corn.

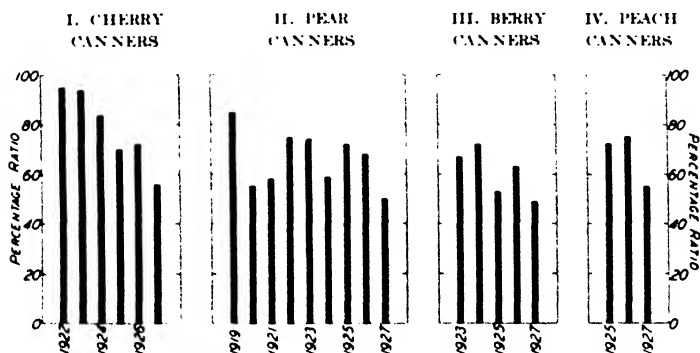
The order basis for tomato canners has consistently been less high than for canners of peas and corn. (See chart on page 75.) The proportion of the annual tomato pack ordered in advance, however, has not declined as abruptly since 1924 or 1925 as have those in the other industries discussed. For tomatoes, as for the other food products, 1921 was a bad year for futures buying. Following 1921, however, futures were sold freely through 1923 or 1924. Since that time the decline has been steady, but even now the order basis for canned tomatoes is not shown to be worse than it was between 1913 and 1919.<sup>10</sup>

The order basis as shown by the proportion of orders placed in advance is becoming less satisfactory for every major type of canned fruit. (See chart on page 77.) Whether we consider cherries, pears, or berries, the percentage of futures sold in 1927 is far below that sold in 1923. Future sales of peaches also declined greatly in 1927. Data for pears, available from 1919 through 1927, shows futures buying in 1927 to be even lower than in either 1920 or 1921. That is, in each of the four types of canned fruit, there was less advance buying in 1927 than in any other reported year. Movement

<sup>10</sup>The charts showing futures buying of canned tomatoes are, prior to 1923, not wholly satisfactory, because of the limited number of companies. In 1921 there were six companies reporting. Only two companies reported from 1911 to 1917. The combined experience of nine companies, 1923-1927 (not charted), is similar to that of all companies reporting for those years.

toward less futures buying has not been regular, however, in any of the canned fruits, and for three of them conditions were better in 1926 than in 1925. Nevertheless, as in the instances discussed earlier, fruit canners are justified in the feeling that futures buying is declining.

ORDER BASIS FOR CANNED FRUIT, ALL REPORTING COMPANIES  
(Future orders as a percentage of total sales for the indicated year)



*The canned foods industry has had a remarkably strong order basis. One of the most noticeable facts concerning the order basis in the canned foods industry is that for all products a very high percentage has been futures business in all of the years considered.*

Frequently canning companies receive advance orders for more than 90 per cent of their output year after year. Indeed, there are some companies that receive orders for 100 per cent of their output." No other in

"See p. 51.

dustry for which advance orders have been examined has shown a basis for estimating future shipments comparable to that of the canning industry. It would probably be a mistake to infer that the recent futures decline in the canning industry means that this business is to turn into one which essentially produces for stock to be sold on some competitive basis after production. But it is indeed interesting that this great industry, dependent upon agricultural production and similar in so many ways to agriculture, should have a marketing system organized on a vitally different basis. The high order basis in the canning industry is about as far removed from the order basis upon which farmers operate as one can well imagine. An industry in which the individuals have consistently averaged sales of from 50 to 90 per cent of its output in advance of production has attained a system of marketing strikingly different from that of selling through a competitive exchange after production is complete.

## V. TWO UNCLASSIFIED INDUSTRIES

Household furniture and industrial pumps, not fitting readily into any of the groups made, are considered here.<sup>12</sup> Unfilled orders and shipments of household furniture manufactured by the companies in a number of associations are reported in the *Survey of Current Business*. Similar data for one of these associations were obtained directly from the association for a some-

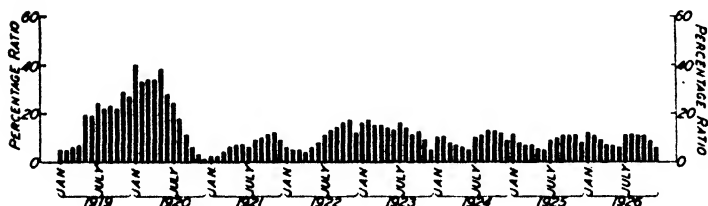
<sup>12</sup> Again the ratio of unfilled orders at the end of each month divided by shipments for the ensuing twelve months is used to measure order basis.

what longer period. The changes shown by these two groupings are so nearly the same that only the grouping giving the longer history will be discussed here.

*Unfilled orders for furniture at their highest point since 1919 furnished only about half the order basis that was provided in the 1919-20 peak.* (See chart on this page.) The order basis steadily improved during 1919, reaching about 40 per cent of sales for the ensuing year in January, 1920. It then declined rapidly to the

#### ORDER BASIS FOR HOUSEHOLD FURNITURE

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



lowest point in the entire period, about 1 per cent in December, 1920. During 1921 and 1922 the improvement was slow, but steady except for seasonal fluctuations. During 1923 the order basis declined to the moderately low level which has been maintained since then. During this last period there have been definite spring and fall seasons but very little change in yearly average.

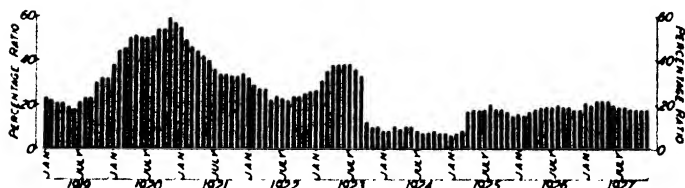
*The order basis for industrial pumps has been good throughout all of the period 1919-1927.<sup>18</sup>* (See chart on

<sup>18</sup> Data for steam, power, and centrifugal pumps, representing about two-thirds of the industry, are compiled by the Hydraulic Society.

page 80.) The ratio of unfilled orders to shipments has varied a great deal, but it was only for about sixteen months, from October, 1923, to February, 1925, that hand-to-mouth buying existed in the industry. During that period it did exist in the sense that unfilled orders on hand at the end of each month were almost continuously less than orders shipped during the month. In March and April, 1925, the order basis for industrial

#### ORDER BASIS FOR INDUSTRIAL PUMPS

(Unfilled orders at end of each month as percentage of shipments for the ensuing twelve months)



pumps moved upward, and the ratio of unfilled orders to shipments for the following year has remained in the neighborhood of 19 per cent. For the past three years unfilled orders show a somewhat cyclical movement, with a high during the summer or spring and a low late in the year.

Changes in the ratio of unfilled orders to shipments in this product have resulted almost entirely from changes in the volume of orders on hand. Shipments have remained surprisingly uniform from year to year. There was some increase in 1919 and 1920, but no such striking growth of output as has been noted in many

industries. This is an industry in which for the past ten year the actual unfilled orders could be taken as a very close approximation of the ratio of unfilled orders to shipments.

An attempt to summarize the experience of the several industries considered leads to the word "variety." From industry to industry the order basis has varied, and within the groupings made there has seldom been consistency. The evidence is clear, however, that a downward trend has been common since 1920, although a rise which often occurs between 1921 and 1927—frequently in 1923—makes doubtful statements concerning trend for the whole period. In those industries where the order basis in the pre-war years can be studied, one finds conviction that the order basis symptoms which we call hand-to-mouth buying have been present upon more than one earlier occasion. Moreover, we may conclude that a changed order basis may result from various causes. Declining orders or mounting shipments may produce similar effects, or a combination movement may show the same result. Finally, in certain lines of business the order basis is much higher than in most others and for certain goods the order basis remains at a high point throughout the period studied.



## CHAPTER VI

### THE ORDER BASIS: BUYERS' REPORTS

Those who purchase view unexecuted contracts of sale differently than do sellers. Instead of speaking of advance orders, orders booked, or unfilled orders, they speak of outstanding commitments, or outstanding orders. Data on these, as well as on unfilled orders, may be used to measure order basis. Enough of such data would picture the order basis of industry; for a given type of purchaser, they show the nature of the order basis furnished to his vendors by such a purchaser.

Evidence on outstanding orders of two important types has been obtained and studied. First will be considered the order basis furnished by department store purchases as shown by the ratio of their outstanding orders to their sales; second will be examined information secured from about one hundred thirty purchasing agents, which makes it possible to analyze the changes, if any, in the period of ordering ahead during the fifteen years 1914 to 1928.

#### I. THE ORDER BASIS FURNISHED BY DEPARTMENT STORE PURCHASES

Over six hundred department stores reported outstanding orders by months to the Federal Reserve Board

during the period 1920-1927.<sup>1</sup> The Federal Reserve Board then summarized these reports for each principal city, for each Federal Reserve district outside of these cities, for each Federal Reserve district as a whole, and for the United States as a whole. The data for six of these districts and for the United States as a whole have been handled in such a way as to ascertain whether the orders placed by department stores have been providing a better or poorer order basis for the many manufacturers from which purchases are made.<sup>2</sup>

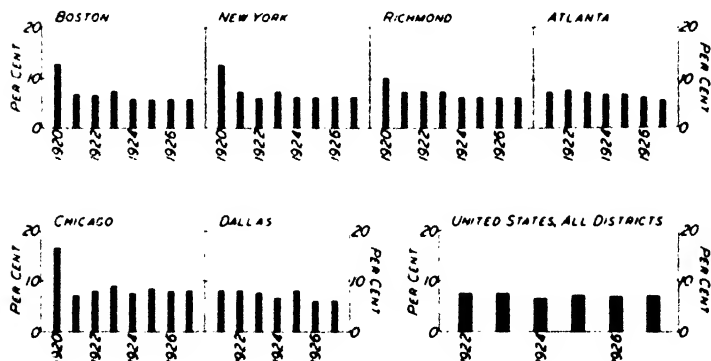
<sup>1</sup>The general collection of reports of department store orders outstanding by the Federal Reserve Board was discontinued in January, 1928. The data used in this study were furnished by the Federal Reserve Board from unpublished records.

<sup>2</sup>These data as reported were not entirely satisfactory for this purpose, as they were expressed as percentages of total sales for the preceding year. Used thus, a change in the volume of business, as well as a change in the proportionate amount of advance ordering, would change the ratio. For example, suppose sales to be the same for 1922 and 1923 but larger in 1924. Then suppose outstanding orders to be a constant proportion of the sales for each year. When outstanding orders are expressed as a percentage of sales for the preceding year, the 1924 ratio would be greater than the 1923 ratio. Obviously this would not be a true measure of the change in order basis. To remedy this, an estimate was made of the ratio of outstanding orders for each month to total sales for the same year. About half of the stores which report outstanding orders to the Federal Reserve Board also report sales. These are summarized for Federal Reserve districts and for the United States as a whole and put in the form of an index number (*Survey of Current Business*, April, 1928, pp. 20 and 21). The average for each year of outstanding orders at the end of each month, expressed as a percentage of sales for the preceding year, was multiplied by the index number of sales for the preceding year and divided by the index number of sales for the same year. This method gives reasonably satisfactory results for the New York, Richmond, Atlanta, Chicago, and Dallas districts, where the number of stores reporting sales is almost as large as the number of stores reporting outstanding orders. It is somewhat less satisfactory for the Boston district and for the United States as a whole, where the difference between the number of stores reporting outstanding orders and the number reporting sales is greater.

*There is a tendency for department stores to furnish a weakening order basis for their vendors. (See chart on this page.)* Five of the six Federal Reserve districts for which estimates were made show at least a slight trend downward in the ratio of outstanding orders to sales during the period 1921 to 1927. In every district

ORDER BASIS FURNISHED BY DEPARTMENT STORE PURCHASES IN  
DESIGNATED FEDERAL RESERVE DISTRICTS, 1920-1927

(Average for the year of outstanding orders on hand at end of months, expressed as a percentage of year's sales)



for which data are available the order basis of 1920 was very much greater, in some instances twice as great, as that for any year since then. The Chicago district shows considerable change from year to year but has a slight trend upward. In most districts the ratio in 1923 is relatively high. In some instances the 1922 or the 1925 ratio, or both ratios, are high. In every case, excepting in the Atlanta district, the ratio in 1924 is lower than that in either 1923 or 1925. The ratio of

outstanding orders to sales in the Atlanta district shows a steady decline beginning with 1923.

*There is much variation in order basis among the different districts.* The average of the order basis ratios for each of the districts for different periods of years is:

District	Eight Years 1920-1927	Seven Years 1921-1927	Six Years 1922-1927
Number 1, Boston .....	6.8	6.0	6.0
Number 2, New York .....	7.1	6.3	6.2
Number 5, Richmond .....	6.7	6.3	6.2
Number 6, Atlanta .....	...	6.6	6.6
Number 7, Chicago .....	9.1	8.0	8.2
Number 11, Dallas .....	...	7.1	7.0
United States, all districts .....	...	...	7.0

It shows that Boston department stores offer their vendors the poorest basis for planning, with Richmond and New York stores giving but little more. From the standpoint of the stores, this means buying on a comparatively hand-to-mouth basis. Chicago has much the highest ratio of orders to sales.<sup>3</sup>

A study of the outstanding orders each month for the Boston, New York, Atlanta, and Dallas districts shows that the variation of outstanding orders within a year is greatest in Dallas and least in Boston. New York shows less variation than Atlanta. The district having the greatest average ratio of outstanding orders to sales shows the greatest monthly variation in this ratio. In fact, if these four districts for which both types of data have been studied were arranged in the order of increasing monthly variation, they would also be arranged in the order of increasing average ratio of outstanding

<sup>3</sup> Some of the most prominent stores in Chicago did not report, however, which, no doubt, in part accounts for this fact.

orders to sales. The variations within the year are definitely seasonal.

*There is some evidence that department stores in large cities furnish a weaker order basis than do "outside" department stores.* The monthly variations of outstanding orders were computed for a large city in each of five districts. These variations were compared with similar variations for the "outside." The comparison of Boston and "outside" shows that outstanding orders vary much more "outside" than in the city.\* (See chart on page 87.) The comparisons in the New York, Atlanta, and Richmond districts show similar, though less marked, differences. The Dallas district, on the other hand, shows very little difference between the two sections. We have seen above that in those districts where the order basis was greater the monthly variation was greater. From this fact and the fact that the "outside" shows the greater variation the inference may be justified that "outside" buyers give vendors a better order basis than do city buyers; otherwise expressed, do not exercise so extensively a policy of hand-to-mouth buying. The most probable explanation of the differences between city and comparatively rural districts is that the cities are more conveniently located to dealers who will furnish

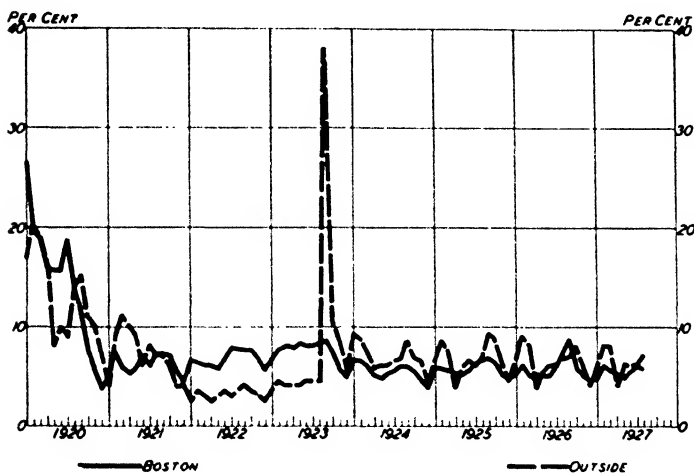
\* In each Federal Reserve district data are grouped for one or more principal cities and also for the remainder of the district. The part of the district not in any one of the cities separately considered is called "outside."

\* It was interesting to note that in 1920 the order basis for the city was far higher than for the country. It is probably safe to infer that the city buyers in that boom period were buying more speculatively than those in the surrounding territory. This inference is suggested also by the high deviation for Boston in 1920.

them with goods in small quantities on very short order, while the "outside" districts must order farther in advance in order to be sure to receive shipments in time for expected sales. The monthly fluctuations of the ratio

SEASONALITY OF ORDER BASIS IN BOSTON AND "OUTSIDE," 1920-1927

(In each area outstanding orders of department stores at the end of each month are expressed as percentages of preceding year's sales)



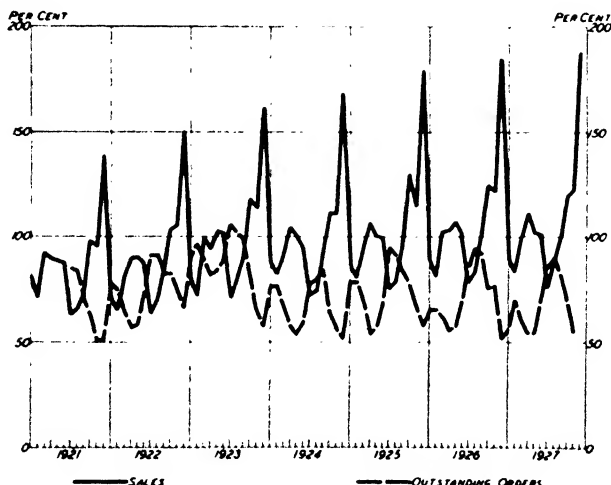
in city and "outside" districts seem to show a closer agreement in 1927 than in any other years. This may well mean that motor trucks, good roads, telephones, knowledge of stock-keeping, and other factors are urbanizing the buying practices of the "outside" districts.

*Although department store sales exhibit regular seasons throughout the period, there is evidence that the seasons for placing orders vary. (See chart on page 88.)* This variation shows an interesting relationship

to changes in general business conditions. So far as the spring season is concerned, there are two years—1923 and 1927—when outstanding orders were higher in February than in January.\* In every other case they

#### OUTSTANDING ORDERS AND SALES OF DEPARTMENT STORES IN THE UNITED STATES, 1921-1927

(Monthly sales and outstanding orders at the end of each month as percentages of average monthly sales for 1923-1925)



were either the same or lower. The situation must be accounted for differently in the two years, however. In 1923 orders were high in January, and the increase in February was apparently due to the boom in business

\* An estimate of outstanding orders which would be comparable to sales relative to 1923-1925 monthly average = 100 was made as follows: Each monthly ratio of outstanding orders to sales of the previous year was multiplied by total relative sales of the previous year.

conditions. This is borne out by the fact that even during the spring and summer outstanding orders were maintained at an unusual height and that the order basis for the first six months was high. In 1927, however, orders appear merely to have been postponed. The increase was comparatively slight in January. Moreover, the peak in February was followed by the usual seasonal decline.

The second seasonal rise in outstanding orders begins in May and reaches a peak in July in every case excepting in 1924 and 1927. In both of those years the initial rise was postponed until June, and the peak was not reached until August. It appears reasonable to relate the 1924 situation to the fact that in that year the prices of such important department store items as silk, rayon, and cotton goods were declining sharply for the first six months of the year, while house furnishings declined considerably, and boots and shoes somewhat. Inasmuch as there was no significant decline in the prices of important department store merchandise in the same period in 1927, it is reasonable to surmise that the hand-to-mouth buying of that year reflected something of a policy rather than a means of meeting a situation.

## II. THE PURCHASING OF PURCHASING AGENTS

About one hundred thirty purchasing agents located in various parts of the country, representing some twenty industry groups, and buying a great variety of materials, answered an inquiry as to how far ahead it had been the practice of their company to place orders for two or



more important commodities purchased, in each of a number of years.' They were asked to give the information in days for each of the years: 1914, 1918, 1922, 1924, 1926, 1928. In cases where one company gave data for more than one commodity purchased, that for each commodity will be considered as one report.

A study of these reports does not give us a direct measure of the order basis, but it does show what has been happening to the length of period in which orders are outstanding. It thus throws light on one of the important factors that determine the order basis.

As the replies gave a variety of periods for ordering ahead for the various years, it was necessary to divide those reported into groups. Eight groups of the number of days orders were placed in advance were made as follows:

Less than 14
14 to 30
30 to 60
60 to 90
90 to 120
120 to 180
180 to 360
360 or over

For each year the number of reports of advance orders falling within each of these groups was counted and expressed as a percentage of the total number of reports for the year.

*A striking picture of the shortening period for ordering in advance is made by the reports of purchasing*

<sup>1</sup>Those reporting were members of the National Association of Purchasing Agents, through the courtesy of which organization the study was made possible.

*agents.* (See table on this page.) The percentage of reports showing that orders were placed less than sixty days in advance increases steadily through the period so that it is nearly three times as great in 1928 as in 1914. The percentage of those showing ordering from sixty to one hundred and twenty days in advance changes very little through the period except for an increase of nearly 20 per cent in 1922 and a similar decrease in 1928. The percentage of those showing ordering farthest

NUMBER OF REPORTS SHOWING ORDERING IN ADVANCE, FOR PERIOD INDICATED

(As a percentage of the number of reports for the year)

Number of Days in Advance	1914 (107 reports)	1918 (128 reports)	1922 (154 reports)	1924 (173 reports)	1926 (182 reports)	1928 (184 reports)
Less than 14.....	2	1	2	2	5	6
14 to 30.....	2	1	5	5	6	8
30 to 60.....	13	13	16	<b>24</b>	<b>26</b>	<b>33</b>
60 to 90.....	20	16	21	20	22	15
90 to 120.....	<b>25</b>	<b>26</b>	<b>29</b>	23	20	19
120 to 180.....	8	13	8	8	5	4
180 to 360.....	19	17	13	10	9	8
360 or over.....	11	13	6	8	7	7

in advance, one hundred and twenty days or more, decreases steadily until it becomes just half as large in 1928 as it was in 1914.

The most common period for placing orders ahead was ninety to one hundred and twenty days in 1914; it was thirty to sixty days in 1928. The second most common period in 1914 was one hundred and eighty to three hundred and sixty days ahead; in 1928 the second most common was ninety to one hundred and twenty days ahead.

*The average number of days of purchasing ahead has decreased.* There were about 127 reports which gave data for each of the years 1918 to 1928 for which information was asked. The average of the number of days that these companies ordered ahead in each year is as follows:\*

1918.....	140
1922.....	108
1924.....	101
1926.....	94
1928.....	88

Were these changes caused by all or a large proportion of the companies shifting to a somewhat shorter period? They might have been caused by some companies shifting from a very long period to a short one, while others changed perhaps not at all. To answer this question, a count was made of the reports to see how many indicated a change in the period of ordering ahead during the years under consideration. Comparisons were made of 1924 with 1914, of 1928 with 1924, and of 1928 with 1914. The percentage of reports falling in each group is as follows:

	1924 than in 1914	1928 than in 1924	1928 than in 1914
Ordering less far in advance.....	42	40	58
No change .....	52	49	36
Ordering farther in advance.....	6	11	6

It appears that somewhat more than half of the reports

\*It will be noted that in this average reports of small and large concerns are given the same weight, and that no account is taken of the fact that some commodities are included more times than others. It is, therefore, as stated, merely an average of the number of days reported in each report and not an average number of days of ordering ahead for the concerns included.

show a shortened period of ordering ahead when 1928 is compared with 1914. Thirty-six per cent show no change, and 6 per cent show placing of orders for the same product farther ahead than before. The analysis of the reports for the two shorter periods shows that in each instance about half of the reports showed a change in practices, some showed an extended period, and about 40 per cent indicated buying on a more hand-to-mouth basis.

The final conclusion on the order basis in the light of Chapters IV, V, and VI must be that the trend of the order basis of American industry has been downward since 1920. The variety of experiences through which industries and individual companies have passed, however, make sweeping statements hazardous. Cases are not wanting which contradict the general trend, and many instances have been cited in which the trend began several years later than 1921, or appeared before 1920, or was broken in 1923, or in other years. Moreover, throughout the period some industries have maintained a higher order basis than others have ever enjoyed. There is some evidence on pre-war years: that from the purchasing agents suggests that their pre-war practices were quite different from those now in vogue; that from the studies of advance orders of industries and individual companies indicates that post-war order bases have been known in pre-war days.

It is indeed an interesting paradox that during a period when industry has been expanding rapidly the

basis upon which it could be somewhat rationally pre-planned has been commonly a declining one. While business men must, since 1921, have been greatly concerned about future business, because of the lack of advance orders, the business has nevertheless generally been forthcoming. It may be said that it has been necessary for business men to have a greater faith in recent years than in the past. If so, it has been a faith in the general growth, prosperity, and stability of American industry rather than in the sanctity of contracts.

## **B. THE SIZE OF UNITS IN THE FLOW OF TRADE**



## CHAPTER VII

### THE MEANING OF THE SIZE OF UNITS

In carrying on the work of modern production, the task of organizing specialized producers into an effective unit is not the only problem to which specialization gives rise. A second problem, one which has been the subject of much recent discussion among business men, is concerned with the size of units in the flow of trade. It is with the size of units in the flow of trade that the next three chapters deal.

The business man in speaking of the size of units in trade speaks of "the size of orders." But there are in reality two concepts which must be distinguished. These are "orders" and "shipments." An order may call for a single shipment, or it may call for many shipments. It is possible that many orders may be combined in a single shipment. Taken together, orders and shipments may be spoken of as the units in the flow of trade, the orders organizing trade, and the shipments following most commonly from the orders, but being by no means always of corresponding size.

Because the term "orders" is so generally used to apply to orders or shipments, or to both, without sharp distinction, it has been impossible in gathering data to distinguish definitely at all times, for all companies



reporting, between orders and shipments. This being true, and it being the fact that in many lines of business orders and shipments correspond in size, it is best, while realizing that the units in the flow of trade are both orders and shipments, to follow the business man's practice and use the term "orders" in his general sense. In certain cases, however, the distinction between the two can be made clearly and certainly. In Chapter X the relation between the size of orders and the size of shipments has specific consideration.

For a number of years there has been widespread complaint that an increasing proportion of orders are small orders. This alleged decline in the size of orders is one of the most important business connotations of the phrase hand-to-mouth buying. The manufacturer complains that the wholesaler sends in orders which are so small that they frequently must be filled at a loss. The wholesaler complains that the retailer no longer buys in goodly units but demands an unaccustomed frequency of delivery of small orders. Even the retailer has joined his voice in the general chorus, complaining that the consumer is buying in smaller units and requiring more frequent delivery than has been the case in the past. All declare that the changed condition has brought new costs and new problems of market administration.

Although it is the discussion of business men that has brought the "small order question" into the limelight, it is an economic as well as a business problem. It does not arise from the fact that we organize our industrial activity by private enterprise; it is a problem which

would concern a Socialist state as well. It is one with which Soviet Russia has to deal. It is inescapably related to specialization. As goods flow through the process of specialized production (discussed in Chapter II), costs can be kept at a minimum only if orders and goods move in the most economical "quantities." It is the alleged added costs of smaller units that brings complaint from business men; it is the probability that such increased costs in our productive machinery, if they exist, will eventually find their way to the consumer, that gives rise to social concern. Whether there are growing distribution costs due to smaller orders depends, first, upon whether there are smaller orders. The effects of diminishing size, the probabilities that added costs will be absorbed or that they will be passed on, and a variety of methods used in passing them on, will have consideration later on.

Our first question is, what is happening to the size of units in the flow of trade; or, in the language of business, to the size of orders?

## CHAPTER VIII

### COMPARATIVE SIZE OF ORDERS

The study of the order basis, just concluded, furnished sufficient evidence that no one business and no one industry can be taken as an evidence of the existence or extent of hand-to-mouth buying conditions in another. This leads us to a study of the changes in the size of orders, with the presumption that a rather varied amount of material should be examined. It is, of course, impossible to study the changes in the size of orders for all types of American industry, much less for all businesses in an industry. Evidence has been collected, however, from a wide range of samples. The method of collecting that evidence has not been the same in every case; nor is the most satisfactory method of presenting it always the same. The samples, taken all together, justify general conclusions concerning recent and current trends in the size of orders.

The first sample to be considered is in itself a collection of samples. It is a study of the size of orders among 115 American manufacturers.

#### I. SIZE OF ORDER CHANGES AMONG 115 MANUFACTURERS

As will become at once apparent, this study is an attempt to determine what has been happening to the

size of orders among manufacturers generally.<sup>1</sup> No criteria were applied to the concerns studied excepting that they be manufacturers. In view of the often expressed belief that orders are becoming smaller, the inquiry began with the question, Are orders becoming smaller?

*A decided majority of manufacturers reported an increase in the proportion of small orders, but this report was not universal.* In the statements from 115 manufacturers concerning whether there had been a significant increase in the proportion of small orders received in the past ten years, eighty-nine indicated that there had been such an increase. This is 77 per cent of the total. Twenty-six, which is slightly under a quarter of those reporting, replied that there had not been such an increase. Thus the report shows that approximately three times as many concerns have been experiencing an increase in the proportion of small orders as have not. These companies are of many sorts. The first ten that come to hand are:

A manufacturer of	paint and varnish
"	" " drugs
"	" " shoes
"	" " dairy and poultry feeds
"	" " paper
"	" " refrigerators
"	" " jewelry
"	" " textiles
"	" " soft drinks
"	" " soap

---

<sup>1</sup> This study was carried on with the coöperation of the American Management Association. The data was collected chiefly by questionnaires supplemented by correspondence.

Quite as interesting even though less numerous are those companies that have found no problem of small orders. Among these are:

A manufacturer	of	asphalt
"	"	" spark plugs
"	"	" grinding wheels
"	"	" floor sweepers
"	"	" folding boxes
"	"	" greeting cards
"	"	" alarm clocks
"	"	" iron foundry products

A number of companies reported that their orders were increasing in size. One such case was a manufacturer of laundry machinery, whose experience may reflect the decline of home industry in the transfer of the family washing to commercial laundries, or, if one prefers, the rise in the standard of living as shown by a demand for cleaner clothing. Another company reporting an increase in the size of orders was a manufacturer and retailer, through a chain system, of grocery products. Another was a manufacturer of typewriter ribbons and similar office supplies. Still another was a maker of school and church equipment who reported: "We are constantly building bigger and better schools and churches and these more elaborate structures make their orders average larger."

Not the least interesting report on increased size of orders came from the compilations of a number of life insurance companies which showed that the average size of ordinary life policy increased from \$1779 in 1913 to \$2953 in 1927. This is a gain of 66 per cent. When we realize that sales of life insurance in 1927 totaled approximately \$8,532,000,000—a figure more than a fifth

as large as the estimated volume of retail trade—we realize that there is at least one large field of purchase and sale where the small order problem is not pressing.<sup>2</sup>

*It is one thing to believe that orders have grown smaller, another to know that such is the case and to know the extent to which it has occurred.* Curiously enough many manufacturers who “know” that orders are growing smaller are very ready to admit that they might have difficulty in proving the change or its extent; that is, they have no carefully analyzed figures that demonstrate just what is happening in their business.

Of the 89 that replied “Yes, the proportion of small orders is growing,” 20, or 22 per cent, said that they had figures that showed the change. Of the 26 replying that small orders are not increasing in proportion to large, 8, or 31 per cent, said they had figures. Thus the manufacturers who report no small order problem have statistics to support their opinion in 9 per cent more cases than those who report the proportion of small orders to be on the increase. These findings are summarized as follows:

Manufacturers reporting.....	115	
Having figures .....	23,	or 24 per cent of those having an opinion
Reporting an increase.....	89	
Having figures .....	20,	or 22 per cent of those reporting an increase
Reporting no increase .....	26	
Having figures .....	8,	or 31 per cent of those reporting no increase

---

<sup>2</sup> During approximately the first half of this period we were experiencing a rising price level which might cause men to buy larger policies than before with a view to securing proportionate protection. But during the latter part of the period the increase in size of policies went on at about the same rate.

For any individual company, one conclusion may be drawn promptly from such evidence; that is, the need to know its own situation. Any concern may well discover whether it actually has a small order problem and the extent to which it exists, if it does. No matter what exists in other business, a diagnosis of any particular business may show no small order problem, or it may show a very serious case of small orders.

The need for finding out the true state of affairs is not only indicated by the evidence we have just discussed, which shows that not all companies know the facts, but it is emphasized by further evidence which shows that often what is known about small orders is known wrongly. A number of concerns which had replied that they had figures showing the increase in small orders made them available. In several instances a scrutiny of these data showed no trend whatever toward smaller orders, and in some cases an increase in the size of the order was shown. This statement intends no disparagement to any reporting company. Such facts simply show how easy it is for anyone to misjudge a situation before he looks at the evidence.

Below we shall look at figures showing the changes in the size of orders, not only for companies answering the inquiry being discussed here, but for others. Before these figures can be understood, it is necessary to see how they may be presented.

*There is more than one method of measuring the size of orders, but certain methods may be misleading for some purposes.* One plan is to find a general average.

This may be accomplished by dividing the total sales by the number of orders or invoices. Such a general average is worth determining, is usually indicative of changes from year to year, but may be misleading. If in a given year a concern has received a few very large orders, the result may be to make the average size of order larger than in another year, even though a much larger percentage of the orders was made up of small orders. A hypothetical case which anyone may translate into terms of his own type of business will illustrate this point. Total sales for a given company in 1926 amounted to \$10,000; and in 1927, to \$12,000, let us say. These sales, classified by size of orders, were as follows in the two years:

1926					1927				
50 orders at \$150.00 each	.....	\$7,500			10 orders at \$765.00 each	.....	\$7,650		
10 " " 100.00 "	.....	1,000			30 " " 80.00 "	.....	2,400		
40 " " 37.50 "	.....	1,500			60 " " 32.50 "	.....	1,950		
<hr/>					<hr/>				
100 " " \$100.00 average	...	\$10,000			100 " " \$120.00 average	...	\$12,000		

In 1927 the average order of Company A was \$20 higher than in 1926, but the proportion of its small orders was greatly increased. Sixty per cent of its orders in 1927 were smaller than any taken in 1926. In 1926 only 40 per cent of its orders came into a class called \$80 or below, but in 1927 there were 90 per cent of its orders in that class.

A second, and generally more satisfactory, way of measuring the size of orders is to work out some classification of orders which will fit the particular type of business involved and determine to what extent, if at all, the small orders are becoming a larger proportion of the



total. No such classification can be made which will be satisfactory for every business. A thousand-dollar order may well be small in one business and unprecedently large in another. A thirty-dollar order is good for one concern, whereas for another it can be filled only at a loss.

Below is shown a classification which has been used in studying the actual orders of a given company. The data show, as did our hypothetical case, how the distribution of orders may shift from one year to another.

	1926	1927
Number of orders which were for:		
Under \$5 .....	895	1,059
\$5 to \$10 .....	938	1,030
\$10 to \$15 .....	677	633
\$15 to \$25 .....	733	685
\$25 to \$50 .....	650	524
\$50 to \$75 .....	148	137
\$75 to \$100 .....	81	49
\$100 or more....	72	54

Only a glance at this table is needed to see that the proportion of larger orders fell off in 1927, while the proportion of smaller ones increased.

*Order history has not run a clear course.* Its variation can be seen in the table on page 107, in which is summarized the experience of a number of manufacturers who contributed their experience "with consent to publish." \* In scrutinizing the figures in such a table, one must take account of several facts. First of all is the question of price changes. In this table most of the data are recorded in dollars and cents and are therefore some-

\* In practically every case there was also a request that the name of the company be withheld.

CHANGES IN THE AVERAGE SIZE OF ORDER OF TWELVE MANUFACTURING COMPANIES OF VARIOUS TYPES  
(Figures in dollars unless otherwise indicated)

Year	Jewel-ry	Optical Goods	Sales Books <sup>a</sup>	Metal Special-ities <sup>b</sup>	Agricultural Machinery	Paints and Varnishes	Pumps	Cam-eras	Band Instru-ments	Heavy Hard-ware <sup>c</sup>	Electrical Supplies	
											Com-pany A <sup>d</sup>	Com-pany B
1918	...	...	1,459	...	583	...	...	...	...	..	56	...
1919	...	...	1,233	...	750	...	...	...	...	..	56	...
1920	...	...	1,132	...	782	...	...	...	36.76	..	76	...
1921	...	...	1,002	...	880	...	52.12	63.11	32.74	..	54	...
1922	76.62	...	1,140	...	488	...	49.31	61.23	37.04	65	58	...
1923	87.98	...	1,162	100	566	...	57.61	64.91	37.36	72	66	...
1924	86.22	...	1,178	142	608	...	60.62	67.46	38.36	62	62	67.98
1925	87.86	43.62	1,283	163	664	...	59.41	70.57	39.25	59	60	77.44
1926	82.93	39.04	1,213	178	780	...	60.70	68.98	41.54	73	59	91.78
1927	69.49	46.29	1,232	205	732	...	...	73.36	40.59	69	52	80.00

<sup>a</sup> Average number of books per order.

<sup>b</sup> A preliminary estimate for 1928 is \$225.

<sup>c</sup> An index, not dollars.

<sup>d</sup> Average size of order before 1918 was: 1914, \$27; 1915, \$28; 1916, \$35; 1917, \$44.

what affected by price changes. For those companies whose recorded experience goes back ten years there is the double danger of two trends. From 1918 to 1920, at least until early in 1920, prices in general were advancing, following which there was a general decline. From 1918 to 1920, therefore, the average size of order, if the price of the goods in question was moving with general price changes, might be growing larger because of the change in prices. After that time, under the same conditions, it might have grown smaller.<sup>4</sup> But if we assume that the prices of all the goods have moved with general prices, it is significant if some are reporting larger and others smaller orders.

Nor would much be gained if all of these data were in some physical unit term rather than in dollars and cents, as changes in the kind of goods sold take place very rapidly with certain manufacturing companies. Most agricultural machinery manufacturing companies, for example, have a number of items of importance in their lines now which either did not exist or were of comparatively small importance ten years ago. Moreover, an article of a given name is often not the same article from year to year. The tractor of 1927 is not the tractor of 1918 either in size, weight, character, or value. The same conditions hold true for other manufactured articles to greater or less extent.

Whatever the effects of price changes and of other modifying conditions, it is interesting indeed to see how

<sup>4</sup>It hardly needs to be pointed out that it is impossible to determine an index number for each of these particular companies which would enable one to make price adjustments for them.

differently they have worked in different industries. Jewelry orders, for example, are lower on the average in 1927 than they were in 1922, for the company cited here. But for every year between 1922 and 1927 orders averaged higher than in either of those years. If we look at the figures only from 1925 to 1927, there has been a rather marked decline. The optical goods company, on the other hand, has experienced a comfortable increase in the average size of order in 1927 as compared with that in 1925, but the size of order drops noticeably in the one year between those two. Sales books went out in smaller average orders, from the company whose experience is shown here, in 1927 than they did in 1918, but they have been larger for the past three years than for any year preceding until we get back to 1919. If we compare 1927 with 1921, we find a very substantial gain in the size of the average order for this company. The company manufacturing metal specialties has made a most decided increase in the average size of its orders during the past six years, advancing such orders each year, with one exception, until at present it is two and one-quarter times as large as it was in 1923. The agricultural machinery company has also made a substantial gain in the average size of its orders in 1927 as compared with the period nine years before. But in the year 1921, which we ordinarily think of as a depression year in agriculture, its average order was at the highest point of the period. In 1922 the average size of order dropped to 55 per cent of that of the preceding year. In each year since, however, there has been a gain.

Orders received by the manufacturer of paints and varnishes increased in average size from 1919 to 1920, but suffered a sharp break in 1921. There was a small advance in 1922, but the average size of order of this company has gone downward each year since that time with the exception of the year 1925, when a slight advance was scored. The pump manufacturer experienced a drop in the average size of orders in 1922 as compared with 1921, but this was much more than regained in 1923. A still further advance, though only a slight one, was made in 1924, and orders have remained at practically the same size through 1926. The average size of orders for cameras has increased, ranging around an average of about \$62 for the years 1921, 1922, and 1923, then advancing to slightly over \$67 in 1924, to \$70 the next year, then falling off slightly in 1926 to reach an average of over \$73 in 1927. The general trend of the period has been decidedly upward.\* The manufacturer of band instruments experienced a decline in the average size of order in 1921, when orders fell from \$36+ to \$32+. This loss was more than made up in the ensuing year, however, and orders have advanced steadily in size every year since that time. The series of figures for heavy hardware show a considerable variation. However, 1924, is the only year in which the average size falls below the average size in 1922, which was the first year of this series. The period closes with orders definitely larger than at the beginning of the period.

\*This manufacturer reports that the increase in the average size of orders may be accounted for partly by the addition of wholesalers, and partly by the addition of a moving picture camera to the line.

Not the least interesting is the experience of the two manufacturers of electrical supplies. Company A and Company B make essentially the same type of materials. Both are companies with a very wide distribution, but Company A sells a larger proportion of its goods in the East, while Company B is more particularly a Mid-western concern. Company A is the larger of the two. These two concerns have had experiences almost the reverse of one another. Company B's orders have increase since 1924 from an average of \$67.98 to an average of \$80.00. Company A's orders have decreased from an average in 1920 of \$76 to an average in 1927 of \$52. Both have been working on the problem of small orders and in their communications have described some of their efforts to lessen the decline in size of order, which they believe to be general. The different results are without any doubt in part due to different policies with reference to small order buyers.\*

It thus appears that the experience of nearly every one of these companies with respect to the size of orders has varied somewhat during the period for which its history is available. Yet certain general conclusions can clearly be drawn. Here are twelve companies, the experience of which ranges over somewhat different periods, but each of which has furnished figures running well down into the years when hand-to-mouth buying has supposedly been most widespread. Out of these twelve companies eight show a larger average size of order than they did in the year for which their figures

\* Methods of meeting the small order problem are discussed in Chapter XXI.

are first available, while four show a decrease in the average size of orders. That these changes are not altogether due to changes of price level or of types of goods sold is indicated when we note that exactly the same eight companies show a larger size of order in the last year for which they have furnished figures than they did two years earlier. Put another way, every company which has a larger average order in its last reported year as contrasted with its first reported year has also a larger average order for the last year as contrasted with the second year prior to that time. Precisely the same statement may be made for the other four companies, excepting that in each instance the more recent orders are smaller.

These data should not lead us to the conclusion that more manufacturing companies are experiencing increases in orders than are experiencing decreases. A good many companies which were unable to furnish statistics capable of tabulation did, nevertheless, show some reason to believe that their average size of order was growing smaller. One soap manufacturer, for example, states: "Our orders received during the five years previous to 1922 averaged about eight boxes to the order; and from 1922 to 1925 about six boxes to the order; and from 1925 to the present time this average has kept to about four boxes." Such expressions need to be taken into consideration in drawing conclusions about the general condition of the size of orders. There are, moreover, further data in some of the evidence produced below which should be considered before a conclusion as to the size of manufacturers' orders is reached.

## II. THE SIZES OF ORDERS IN THE CANNING INDUSTRY

In answer to the questionnaire sent to members of the National Cannery Association, seventy-three reports on sizes of orders were secured from more than forty-five canning companies scattered over nineteen states of the United States.<sup>1</sup> The figures dealt with canned corn, canned peas, canned tomatoes, canned fruits of various kinds, and canned salmon. The longest single company history on sizes of orders covered the 21 years 1907-1927, inclusive; another began with 1910; the others covered shorter periods of various lengths. The sizes of orders for each product are discussed separately.<sup>2</sup>

### A. The Varying Sizes of Orders for Corn

Data showing orders over various periods were secured from some twenty-three corn canning companies. The number of companies reporting on canned corn orders for each year was as follows:

1910.....1	1916.....5	1922.....12
1911.....2	1917.....6	1923.....14
1912.....3	1918.....9	1924.....15
1913.....3	1919.....9	1925.....21
1914.....4	1920.....11	1926.....21
1915.....4	1921.....12	1927.....23

---

<sup>1</sup> Several companies packed more than one commodity and, as a result, made more than one report. Each company has been given a number by which it will be designated wherever its record is given individual consideration.

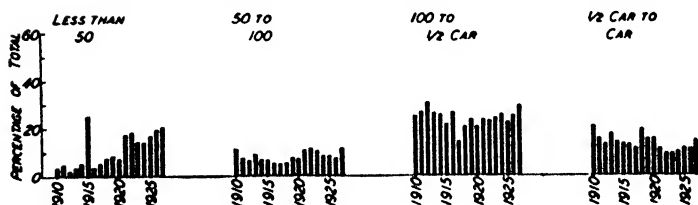
<sup>2</sup> In using the phrase "size of orders" in connection with canned goods, it should be borne in mind that it is orders in the sense of orders placed that are involved. Orders are often taken which crop conditions make impossible of fulfillment. They are not, therefore, an adequate measure, in the canning business, of what transpires in the shipping of the goods.



As the number of companies reporting in each year increases, the data obviously become more representative and less influenced by the record of any one concern. The information made possible a tabulation of orders in the following size groups:\*

Less than 50 cases  
 50 to 100 cases  
 100 cases or more, but less than half a car  
 Half a car or more, but less than 1 car  
 1 car or more, but less than 5,000 cases  
 5,000 to 10,000 cases  
 10,000 to 20,000 cases  
 20,000 cases or more

PROPORTION OF CORN CANNERS' ORDERS IN  
 (Each size-group—in number of cases—as a percentage



### 1. NUMBER OF ORDERS OF INDICATED SIZES

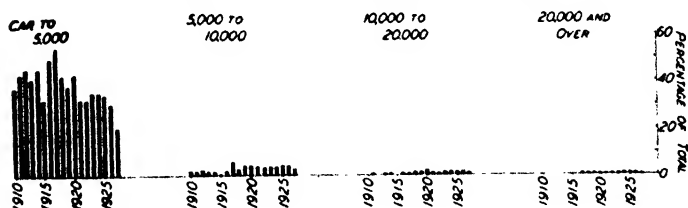
In examining the chart on this and following page, it is worth while to begin with those sections that deal with the smallest orders, as they are the major subject of current discussion.

*The evidence on very small orders, those for less than fifty cases, supports the current belief that small orders are increasing. Small orders have averaged a distinctly greater part of the total number since 1920 than in the*

\* For purposes of approximation one may think of a carload of canned goods as 1000 cases, although it is frequently somewhat less.

period prior to that time. Very striking, in looking through the sections of the chart which deal with these orders, is the sharp increase which is observed following 1920 and the way in which this increase is maintained, reaching a high point in 1927. Equally noticeable is the fact that in 1915 canners received a proportion of orders of this size unequalled by anything that has followed, although in recent years the percentage of these orders has advanced, and in 1927 was almost as great as in 1915.

INDICATED SIZE-OF-ORDER GROUPS, 1910-1927  
of designated yearly total, all reporting companies)



The 1915 situation, so much like that in 1927, may be accounted for by several phenomena. It is, of course, possible that the data themselves are not representative, as there were only four companies which reported orders for canned corn in 1915. Yet this explanation seems doubtful, as each one of these companies reported a much greater number of orders of this size in 1915 than it did in any nearby year. It is probable, therefore, that the explanation is to be found in economic conditions. The year 1914 was one of depression with extensive unemployment, many failures, and definite commodity price

decline. Canned corn prices were also depressed in that year, and continued to decline until the last month or two of 1915, when there was a slight advance followed again by a decline. It is easier to account for the increase in the proportion of small orders following 1920 than it is to explain their continuance since that time. There was a strong downward trend of corn prices from the end of 1918 to March, 1921. Then came a vigorous rise, running into the fall of 1921. This was followed by a decline until the middle of 1922, when there came first a gentle and then a sharp rise, reaching a peak in the spring of 1925. The sudden drop to the fall of 1925 changed into a slowly rising price through 1926 and 1927. The period from the middle of 1922 until the spring of 1925 did not, therefore, give the same price reason for small orders as did 1915, or 1920-21. Indeed, the trade journals report little hand-to-mouth buying in that period, so far as placing business ahead was concerned.

*Orders for lots of fifty to one hundred cases have varied widely as a percentage of the total number of orders.* They show materially less evidence of increase than the smallest size of order. The number of such orders declined in general from 1910 to 1917, rose again to a high point in 1922, and after a second decline became a higher percentage of total in 1927 than in any year since 1910. A first glance at the chart showing the fluctuations in the percentages of these orders is likely to suggest that they have not varied greatly from year to year. But a more careful observation will show that,

measured in terms of a percentage of change, there has been wide variation. In 1917 these orders were 5.2 per cent of the total, as compared with 9.8 per cent in 1913. In 1922 they were up to 11.5 per cent, and in 1926 were down to 7.5 per cent. By 1927 they had increased to 11.9 per cent. If we take only the last two years into consideration, one is justified in the statement that there has been a sharp increase in the percentage of orders which are in this class. If the past two years are compared with the years 1921 to 1923, this increase is much less apparent. The average percentage for the seven years since 1920 is definitely higher than that for the preceding seven years, or for the whole of the period before 1920.

*The percentage of orders for one hundred cases or more but less than half a car has been more uniform from year to year than the percentages of the groups previously considered. Two distinct trends are observable, however. The first of these is a downward trend from 1912 through 1917, and the second an upward trend from 1917 through 1927. The year 1917 with 14.8 per cent has the lowest percentage for the series. As this order is in the "small" class, infrequency might well be expected in a war year. There was an increase to 20.3 per cent in 1918, however. In 1919 these orders had reached 23.9 per cent of the total and never since have fallen below 20 per cent. The highest point reached since 1912 is 29.1 per cent of the total in 1927. The average percentage of these orders is higher in the seven years following 1920 than in the seven years*

preceding it, and higher for the second half of the period than for the first half.

Taking the period as a whole, orders of the type under discussion are the second most frequent type of order received by corn canners. Indeed they have been second highest in frequency for every year of the period except 1915 and 1927. In 1915 they were a smaller part of the total than orders of less than fifty cases, and in 1927 they surpassed all other sizes of orders in frequency. Orders of this type have averaged 24.1 per cent of the number of orders received.

*The number of orders for one-half car or more, but less than a car, in the period 1921 to 1926, made up an almost constant proportion of the total number of orders received. They became a larger part in 1927. Not only are they constant, but they are comparatively few. In the period 1921 to 1926, inclusive, there is not a single year when these orders are as large a part of the total as in any year prior to 1921.*

The period before 1921 contrasts with the later period in its irregularity. It shows sharp upward movements followed by gradual declines. From 20.4 per cent in 1910, there came a decline to 13.2 in 1912. From 17.2 per cent in 1913 these orders dropped to 11.8 per cent of the total in 1917. The following year they were up to 19.0 per cent, following which came another decline.

If these orders are counted as "large," there is evidence of a drop in large orders following 1920 from which recovery has been made only in 1927. If they

are counted "small," it is obviously small orders that have declined.

*In 1927 the carload order—that is, the order for a carload or more but less than five thousand cases<sup>20</sup>—for the first time in the eighteen years studied lost its place as the order of most frequent occurrence. The one hundred case order took its place as the modal order.<sup>21</sup>*

There was never a year prior to 1927 when orders of the carload type were not a plurality. Moreover, with the exception of three instances, every company reported orders in this group for every year. In 1927 the carload order not only yielded first place to the one hundred case order but the less than fifty case order was within one-tenth of 1 per cent of equalling the carload order in frequency. Thus while the carload order retains second place in frequency, that place is insecure.

The significance of the carload order in the past is further emphasized by the fact that a third to a half of all the orders received have been in this class. Excepting only three years, these orders have for every year before 1921 been more than 40 per cent of the orders received. Since 1920 they have never been more than 35 per cent of the total.

In the period 1910-1921 orders for a car but less than five thousand cases varied in frequency, reaching a peak in 1917 and touching a low point for the period in 1921.

<sup>20</sup>There is good reason to believe that a very considerable majority of these orders are for a carload rather than for amounts in the larger sizes of this group.

<sup>21</sup>That is, the size of order which occurs more frequently than any other.

Since 1923 the trend has been definitely downward. The varied frequency has low spots in 1910," in 1915, in 1921, and in 1927, thus giving it some appearance of a cyclical swing. No doubt to some eyes the form of the bars of the chart will suggest, rather, a trend upward from 1910 through 1917 and a downward trend since that time.

*One of the most striking conclusions to be drawn is the great increase in the frequency of the larger types of orders in the post-war as contrasted with the pre-war period.* This is shown particularly by noting what has happened to the three classes of orders for five thousand cases or more.

Orders for five thousand cases or more but less than ten thousand are much more frequent in the post-war than in the pre-war years. While this is readily seen in the chart which shows the average percentage of orders for all companies reporting, the number of companies involved, as well as the number of orders of this size secured by any one company, is so small that conclusions concerning these orders expressed in percentages are unsatisfactory. The experience of particular companies is more revealing. Company 42 and Company 48 are most worth considering. With the exception of 1917—a war year—Company 42 never received three orders of this size in any one year before the year 1922. But it obtained three or more orders of that size in each of the years 1922, 1923, 1924, and 1925. It received two such orders in 1926 and none in 1927. Company

<sup>12</sup> Only one company reported for 1910, however.

48 never received as many as ten orders of this size, with the exception of the war year 1917, until the year 1921, in which it received eleven. It has secured ten or more orders of this size every year since 1921, reaching the highest number in 1926 with fifteen such orders. In 1927 it received ten orders of this size.

The observation that those companies which have received orders of the larger sizes received them most abundantly in the post-war period is emphasized by a study of orders for ten thousand cases or more but less than twenty thousand cases. These large orders were a rarity until after the war. This is best shown by the experience of those companies which extends over the greater number of years. Company 42, for example, reports one such order in the year 1911, the earliest year for which it presents data. This company reports another such order in 1913 but no more until 1918. From that year through 1927 orders of this size are reported each year with two exceptions, and in the last two years, respectively, three orders of this size were secured by this concern. Company 48, concerning which data are shown since the year 1910, shows no such order until the year 1914. For every year succeeding for which data are given, with one exception, this company reports orders of this size.

*Orders of the largest size—twenty thousand cases or more—are wholly a war and post-war phenomenon.”*

<sup>11</sup> Recalling the fact that there are approximately 1000 cases of corn to a carload, it will be seen that an order for 20,000 cases means a 20-carload order.



The year 1917 is the first year in which any orders of this size are reported.

Again, the best way of seeing the increase of these large orders is by examining the records of particular companies. There are two companies, the experiences of which were obtained as far back as 1910 and 1911, respectively, which at one time or another received single orders for twenty thousand cases. These two companies taken altogether received only one order of this size, and that one in the year 1917, until the year 1922. One of these companies, Company 48, received its first order of this size in 1922, and has had one or two such orders every year since. The second, Company 42, received its first order of this size (except the 1917 instance) in 1923 and has had from one to three orders of this size in each succeeding year. For Company 34 there is a record running back through 1918. This company received a twenty thousand case order in 1918 and one each year since. Whether it had similar orders prior to 1918 there is no way of telling. (On page 130 will be found a chart which shows the proportion of all orders for canned corn which were for less than a carload and those which were for a carload or over. The chart shows also the proportion of volume represented by these two types of orders.)

The most natural explanation of this development of large orders in the post-war period is in the growth of chain stores and mail order houses and, in later years, of group buying. The gigantic buying power of these enterprises makes possible such purchases, and the necessity of supplying their many outlets may be regarded

as an urge toward assuring themselves of a large supply of required quality.

*Six conclusions are justified concerning changes in the proportion of orders of various sizes. These may be stated as follows:*

(1) There are three types of less than carload orders received by corn canners that have shown a marked increase in relative frequency during "the past few years." " These are orders for:

(a) Less than fifty cases. Such orders have averaged a larger percentage of the total number of orders for the nine years since 1918 than for the nine years preceding that date. The percentage of such orders is higher in 1927 than in any other year but one for which data were secured.

(b) Fifty to one hundred cases. These have averaged higher since 1920 than for the preceding years.

(c) One hundred cases or more, but less than half a car. For these the average percentage for the seven years since 1920 is higher than for a similar period preceding 1920. The percentage was higher in 1927 than in any other year excepting 1912.

(2) No one of these three types of orders has made up a larger percentage of the total number of orders in *any post-war year than in certain pre-war years.*

"The phrase "the past few years" is used partly because it fits the current notions of the period when this phenomenon is supposed to have occurred and partly because the period of years when the facts described have occurred has been longer in some instances than others. In no case does it extend before 1918.

(3) There has been a marked tendency for orders of these three types to be relatively infrequent in years of relatively high prices.

(4) Twice before the current period—in 1915 and 1921-22 respectively—have orders of the smallest size been a large part of the total number received. Following 1915 the relative frequency fell immediately and sharply; following 1921-22 it fell slowly and less far. Beginning with 1925 it has again risen constantly through 1927. Orders of the other two types in this small order class evidence a less marked and less uniform response to the forces at work.

(5) The changes that have occurred in the relative frequency of orders have dethroned the carload order as the dominant one in the canned corn industry. With an almost continuous fall in frequency since 1924, the frequency of carload orders has been exceeded in 1927 by the one hundred case order.

(6) Orders of the three largest sizes—orders for five thousand cases or more—have become far more important in the post-war period. Of these, the largest size—twenty thousand cases or above—none was reported before 1917.

The corn canning industry is in a small order era, but it is also in a big order era. The significance of the two types of orders as parts of the canning business will be given attention in the next section.

## 2. VOLUME IN VARIOUS SIZES OF ORDERS

In what has preceded the change in the relative frequency of orders of various sizes has been under exami-

nation. But what of changes in the volume of business done in orders of various sizes? It is obviously possible that a company may handle a considerably increased percentage of small orders and shipments and yet ship but little more of its product in small units. It takes a great many small orders to equal one large one in volume. Our question here is, then, to inquire what changes have taken place in the *proportion of business done* in orders of various sizes.

But the reporting companies gave information only in number of orders and no returns on volume. To determine an approximate volume, represented by orders of the various sizes for all the companies, it was therefore necessary to assume an average number of cases per order in each order group and multiply this by the number of orders reported for that group for each company for each year. It seemed reasonable for the purpose in hand to assume for the various order groups the following number of cases.<sup>15</sup>

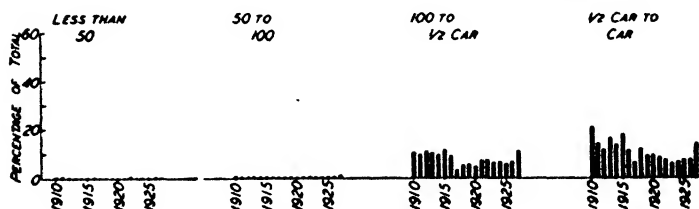
Order Group	Assumed Number of Cases Per Order
Less than 50 cases.....	25
50 to 100 cases.....	75
100 cases or more, but less than half a car....	300
Half a car or more, but less than 1 car.....	750
1 car or more, but less than 5,000 cases.....	1,000
5,000 to 10,000 cases.....	7,000
10,000 to 20,000 cases.....	15,000
20,000 cases or more.....	20,000

---

<sup>15</sup> It is not of great importance that these estimates be more than approximately accurate, so long as the same ones are applied for each year and to all the companies. It is only the changes from year to year that are under consideration.

*Strikingly different from the story told in the preceding section is that revealed by these data when we consider them from the point of view of volume. The most important difference is the fact that increases in the number of small orders seem of comparatively little consequence. This does not mean, of course, that small orders have not increased to the degree indicated in the earlier section, but it does mean that such increases seem relatively insignificant when we realize how small has*

PROPORTION OF CORN CANNERS' BUSINESS DONE  
(Volume of business represented by each size group—  
yearly total, all



been the increase in the proportion of output which such orders represent.

The changing proportion of volume represented by various sizes of orders for all companies for all years considered is shown graphically in the chart on this and following page. We shall see that an examination of these verifies the general conclusions given above.

Although the number of orders for less than fifty cases was over 20 per cent of the total in 1927,<sup>28</sup> these orders

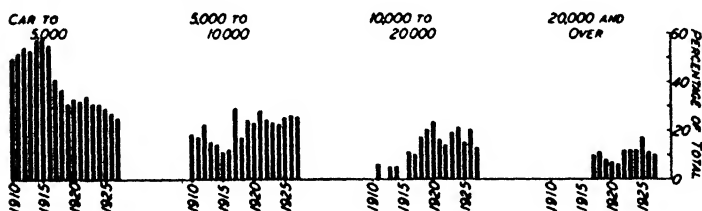
<sup>28</sup> See pp. 114-116 for discussion of the number of orders in this group for various years.

call for only 0.6 per cent of the volume of canned corn shipped. Indeed, in only one year (1915) of the entire period 1910-1927 have these orders ever accounted for more than 0.6 per cent of the total volume.

Nor are orders in the fifty to one hundred case group of significance when translated into volume. While these orders have been a little higher fraction of 1 per cent than has the preceding group in most years, there are only two years in the series when they are more than

#### IN ORDERS OF INDICATED SIZES, 1910-1927

in number of cases—as a percentage of designated reporting companies)



1 per cent of the total volume. These two instances are in 1910 and 1927, when they represent 1.2 and 1.1 per cent of volume, respectively.

*It is only when orders for one hundred cases are reached that the volume represented becomes significant. Accordingly, changes in the frequency of this size or greater are of real importance to canners. As will be seen at once from the chart, orders of more than one hundred cases but less than half a car advanced in 1927 to 11 per cent of the volume shipped, and had been running in the neighborhood of 6 per cent for the five*

or six years preceding. From 1917 to 1921 they had averaged roughly 5 per cent, and prior to that time were about the same part of the total that they were in 1927. The 1927 situation, therefore, appears to be a return to a condition which was somewhat normal before the war rather than a climax of post-war experience.

Even in this group of orders the percentage of volume represented is much less than the percentage which such orders are of the number of orders received. To illustrate specifically, orders of this size were 29.1 per cent of the number of orders received in 1927, but they called for only 11 per cent of the corn shipped.

Orders for one-half a carload or more but less than a car have been of declining importance as a part of the volume, but they exhibit a sharp gain in 1927. The downward trend is observable whether we begin in 1910 or in 1918, the year in which the war ended. Increases in 1925 and 1926 were very slight. Even the 14 per cent of the volume represented by these orders in 1927 is a smaller part of the total than that represented in several pre-war years. Yet these orders, like the one hundred case to half-a-car group, are important. They have never been less than 6 per cent of the orders received.

The proportion which these orders are of the total number of orders received is close to the proportion of the total volume which these orders represent. In 1927, for example, 14.8 per cent of the number of orders received were of this kind, and 14 per cent of the volume was in such orders. In 1910 also 20.4 per cent of the

orders received were of this kind, and they accounted for 20.8 per cent of the total volume.

*Orders in the carload group have shown a marked decrease since the war.* While there was not a year in the series, prior to 1917, when these orders did not account for more than half of the business done, there has not been a year since 1917 when they have accounted for as much as 37 per cent of the business done. In 1917, the first year of a big drop, 40.8 per cent of the volume was in orders of this size.

Moreover, the trend in carload business has been definitely downward in the past five years, the low being in 1927, when only 25.3 per cent of the business was done in orders of this size. This is roughly half of what was normal prior to 1917. Well may the corn canner ask what has become of the carload business.

*The answer is that the volume of carload business has declined because the greater than carload business has grown.* More marked than any other change except the decline of carload orders is the increased percentage of business done in orders of five thousand cases and above. This will be seen at once from noting the relative importance which these orders assume from the year 1917 on. In the group of orders five thousand cases or more but less than ten thousand there is a definite trend upward. While the trend is less certain on orders of ten thousand cases or more, such orders were a small part of the total before 1917. They are, indeed, lacking wholly in many of the years before that date. If orders in the three very large order groups were to be translated into

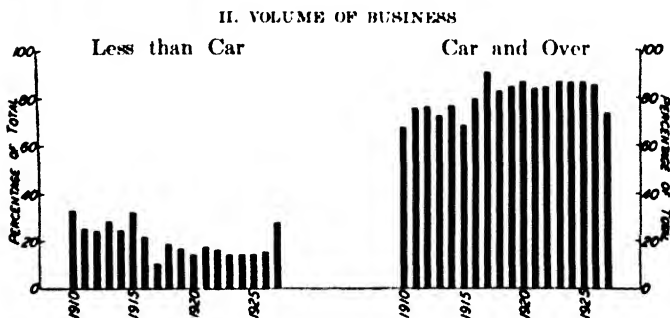
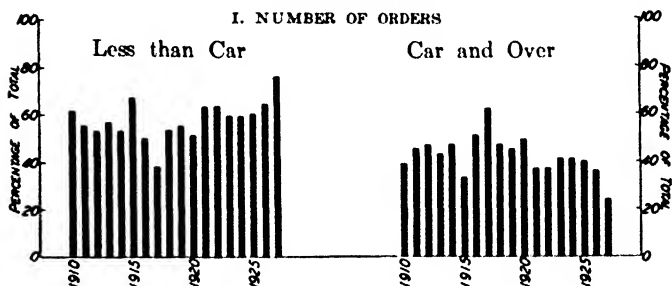


carload orders and put into the chart showing the decline in carload orders, they would occupy a large part of the space left as a result of that decline.

The significant growth of large orders for corn is most strikingly shown by contrasting a cumulation of orders

#### GROWTH IN LARGE ORDERS FOR CANNED CORN, 1910-1927

(Data for each size group are given as percentages of yearly totals, all reporting companies)



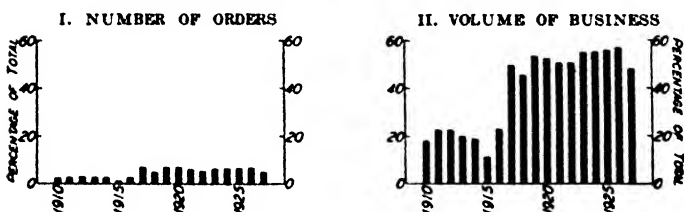
for a carload and over with a cumulation of those for less than a carload. In the chart on this page the business done in orders of less than a carload is shown at the left; those for a carload or more at the right. This chart indicates at once that the percentage of business done

in less than carload lots shows no significant changes from 1921 until 1927. In general there was a slightly downward trend, with a sharp upward jump in 1927.

It should be noted that although the percentage of the number of orders for less than a carload was slightly higher in the post-war than in the pre-war period, the percentage of the volume done by such orders was much smaller after than before the war. In other words, canners have had to handle more of these small orders

#### GROWING IMPORTANCE OF VERY LARGE ORDERS FOR CANNED CORN, 1910-1927

(Orders for 5,000 cases or more as percentages of respective yearly totals, all reporting companies)

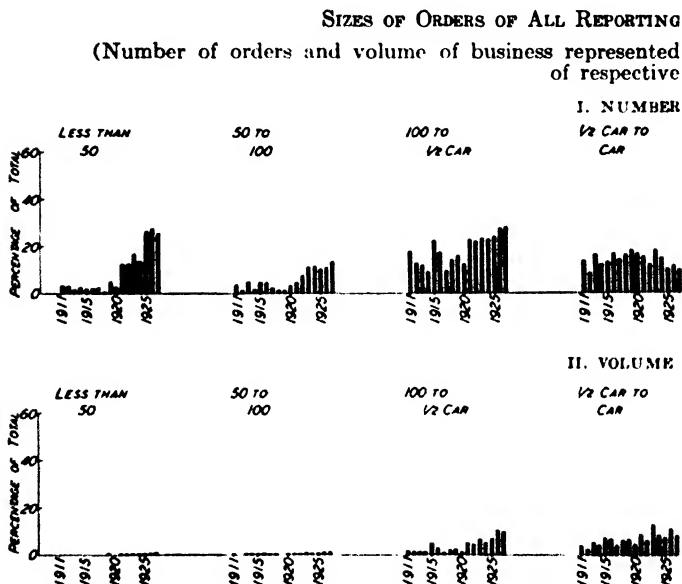


since the war to get the same volume. On the other hand, the business done in orders for a carload or more tended upward until 1925 and showed no decline worth noticing until 1927. This increasing volume was, moreover, done with fewer orders.

A cumulation of all orders for five thousand cases or over emphasizes the new importance of large orders since 1916. (See chart on this page.) In 1917 these large orders accounted for more than twice as much of the volume as they did in 1916. They have averaged more than half the total volume since that time and have increased in importance until 1927.

### B. The Sizes of Orders for Canned Peas

The canners of peas have expressed as much concern about diminishing size of orders as have corn canners. What have been the facts regarding their orders? Data were obtained from seventeen companies representing



twelve states and all of the principal pea-growing areas. One company reported its experience from 1911 to 1927, inclusive, a period of seventeen years. The histories of the other companies varied from sixteen years to two years in length.

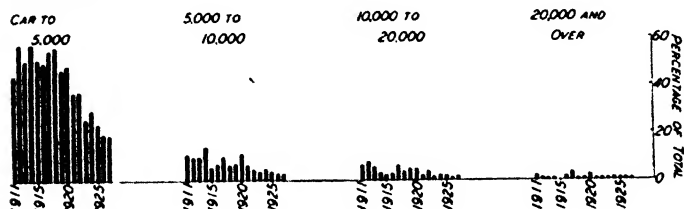
*Canners of peas are justified in their impression that small orders are increasing as a percentage of the total.* (See chart on pp. 132-133.) This is the fact whether we

consider orders of less than fifty cases, orders of fifty to one hundred cases, or orders of one hundred cases to half a car. The second of these three groups has advanced least in relative frequency. Both of the others have shown sharp gains since 1920.

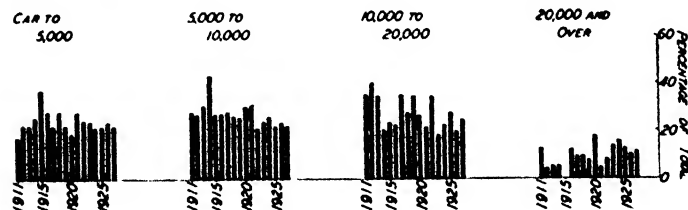
# PEA CANNERS, 1911-1927

by each size group—in number of cases—as percentages yearly totals)

## OF ORDERS



## OF BUSINESS



In their growing relative frequency orders of these three classes show a more pronounced gain since 1921 than do orders for corn in the same size groups. This is particularly true of the orders for less than fifty cases. (See pages 114-115.)

Moreover, the increased frequency of orders of these three sizes is, for peas, more definitely a post-war matter than is the case with canned corn. If we look again at

the chart showing frequency of various kinds of orders for corn, we shall see that small orders have at various times in the past been as frequent as they are at present. This is not true for peas.

*Orders of the three small sizes, particularly the two smaller sizes, represent even now a very small part of the total volume.*" The volume of business now done in lots of one hundred cases to half a car has, however, increased considerably, being slightly above 10 per cent of the volume in 1926. The noticeable increase in the amount of volume called for by these orders has occurred since 1920.

*Orders of one-half car up to those of the largest size show various changes through the period.* Some of them are decidedly different from the movements noticed in studying corn orders. The orders for one-half of a car to a car are becoming relatively less frequent, though they have, since the war, been a slightly larger percentage of the volume." Orders for a carload or more but less than five thousand cases have become almost continuously less frequent since 1918. They are at the lowest point in 1927. While orders of this size represented more than half the total number of orders until 1918 and were by far the most frequent type of order received until 1923, they lost this place in 1925. In 1925, 1926, and 1927, they have been outnumbered in relative frequency by orders for one hundred cases to half-a-car and by orders for less than fifty cases. In 1927 they were

<sup>27</sup> Volume is estimated by the same weighing process that was used in estimating the volume of corn. (See page 125.)

<sup>28</sup> Orders of this size, for corn, with the exception of the year 1927, show almost opposite trends.

only 18.7 per cent of the orders received, while orders of one hundred cases to one-half a car were 28.2 per cent. The percentage of volume represented by these orders, however, does not show any serious decline. This conclusion differs radically from that reached in considering orders of this size for canned corn. (See page 129.)

Orders for peas in the larger size groups appear to be trending downward in relative frequency and to show no gain as a percentage of the volume. This is true of all of the three groups considered. While in all three the proportion of volume represented by these orders is holding up reasonably well, there is a contrast with the gain in this respect noticed in the study of canned corn.

We may conclude concerning orders for peas: (1) that smaller orders are showing a greater tendency to increase in relative frequency than is the case with orders for canned corn; (2) that carload orders are being received with less relative frequency than formerly, are no longer the modal order, and are of somewhat less importance as a part of the volume; and (3) that orders for five thousand cases or more are less frequent and are not accounting for an increased proportion of the pack.

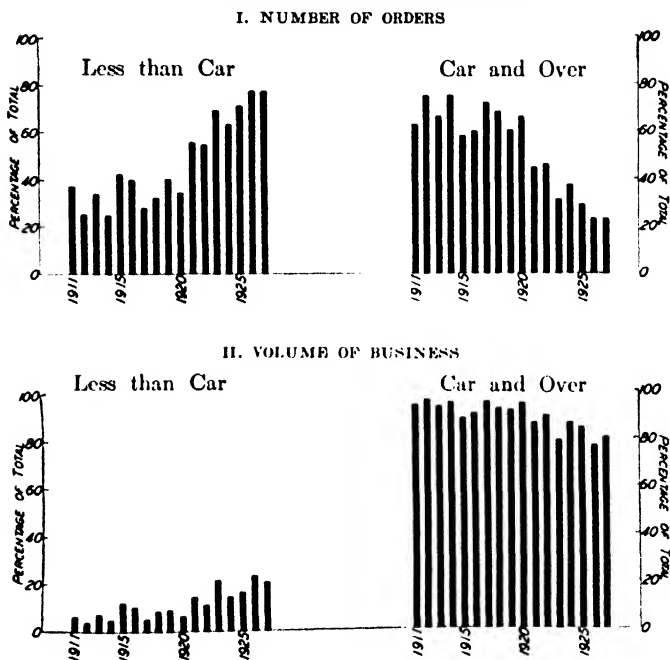
In the chart on page 136 there are cumulated into orders for less than a carload and orders for a carload and over the same data that we have just been considering.

*Orders for a carload or more are becoming of less significance than formerly to pea canners.* In this cumulative chart the great growth in relative frequency of

orders for less than a carload stands out strikingly, while the decline in orders for a carload or more is correspondingly noticeable. This chart shows, as did our

### DECLINE IN LARGE ORDERS FOR CANNED PEAS, 1911-1927

(Data for each size group are given as percentages of respective yearly totals, all reporting companies)

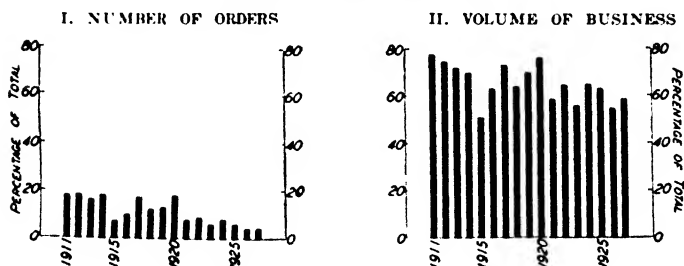


more detailed study of peas, that the sharp growth in small orders has occurred since 1920. But it shows also that certain earlier years saw a very large number of such orders, 1915 being an outstanding case. This

cumulative chart also indicates the increase in percentage of volume in less than carload orders since 1920, and corresponding decline in volume called for by orders of over that size. The pre-war year 1915 is again noticeable as a year of small-order business. It was, indeed, a year when a larger proportion of volume went out in small orders than in the post-war year 1922.

VARYING IMPORTANCE OF VERY LARGE ORDERS FOR CANNED PEAS, 1911-1927)

(Orders for 5,000 cases or more as percentages of respective yearly totals, all reporting companies)



Orders for five thousand cases or more have apparently been less in relative frequency and in relative importance since 1920. (See chart on this page.) Yet this conclusion must be reached with caution. There was a steady decline from 1911 to 1915 to a point where they were a smaller part of the volume than they have been in any post-war year. There is reason to believe that this fall was halted by war demands and that by the time these were over new buying forces—the expanded chain store and mail order house, and group buying—had checked the tendency to decline which was so clearly



noticed prior to 1916. It is quite probable, therefore, that orders for five thousand cases or more are in a more promising position than before the war.

### C. Sizes of Orders for Canned Tomatoes

The evidence secured on sizes of orders for canned tomatoes is less satisfactory than that obtained for corn and peas. The period covered by certain reporting companies is gratifyingly long, one company's record running from 1907 to 1927, inclusive. The data furnished by a second company cover the years 1911 to 1927, but with an unfortunate gap at an important period, due to a discontinuance of packing. Sixteen companies reported altogether; but a considerable number of these provided information only for a three-year period, and the great influx of companies in the last three years caused the data for those years to be incomparable with those that preceded. The records of four companies were obtained for the five years 1923-1927, and a careful consideration leads to the conclusion that the combined records of these four companies is sounder evidence of conditions generally than the combined records of all the companies reporting. To show what has been happening to the sizes of orders of canned tomatoes, it has, therefore, seemed best to present the history of two different companies for the entire period for which each reported and to follow this with the data of the four companies above mentioned.

## 1. THE RECORD OF AN EASTERN CANNER

In the chart on pp. 140-141 is shown, for a period of twenty years, the variations in the sizes of orders of an important Eastern tomato canner (Company 35).

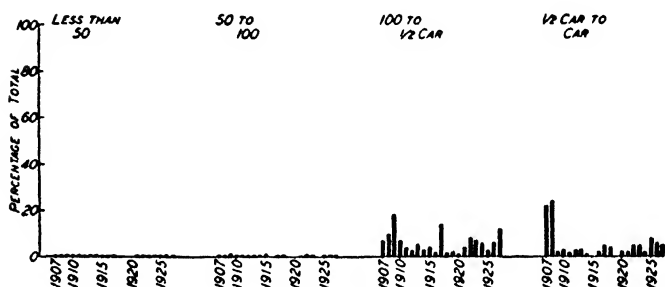
*This company shows no increase in frequency of small orders during the past three years.* At least this is true of the two smaller types of orders. There has been an important increase in the frequency of orders of from one hundred cases to half a car. Curiously enough, orders of this size, which for this company one would be inclined to think of as in the small order class, have been most frequent in 1909, 1917, and 1927. It is difficult to relate this situation either to a theory that such orders increase in years of business depression, or to the idea that 1927 has been, in the number of small orders received, comparable to years of business depression. It should be noticed too that orders for one hundred cases to less than half a car were higher in 1908 than they have been in any but the three years just mentioned. The carload business of this company has been declining almost steadily since 1920, although the years 1922, 1923, and 1924 showed an advance in the frequency of such orders. On the other hand the volume of business done in carload orders has been increasing during the past three years and is now well up with the average of all the years shown. The most severe decline in carload business as a proportion of the volume for this company came between 1911 and 1916. The years since 1921 have averaged much better in this respect than the years in that period.

An examination of the distribution of the three larger types of orders explains some of the conditions just discussed. For example, the volume of business done by this company in orders of ten thousand to twenty thou-

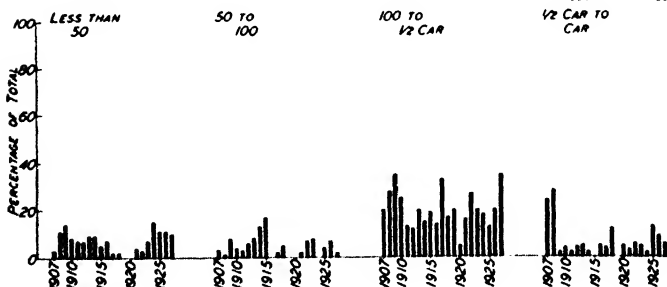
#### SIZES OF ORDERS FOR CANNED

(Number of orders and volume of business represented of respective

##### I. NUMBER



##### II. VOLUME



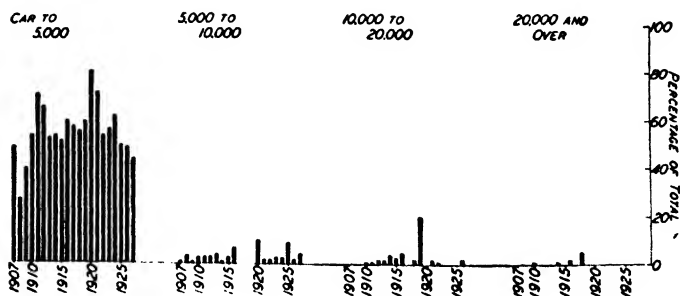
sand cases advanced steadily from 1907 to 1916. It was into this group of orders that the carload business was going. In 1917 carload orders again came to the front, taking 81 per cent of the company's business; but in

1918 such orders lost much of their importance, for the company secured two orders for over twenty thousand cases, which altogether called for nearly half of their volume.<sup>18</sup> In 1919 this company had no orders in the

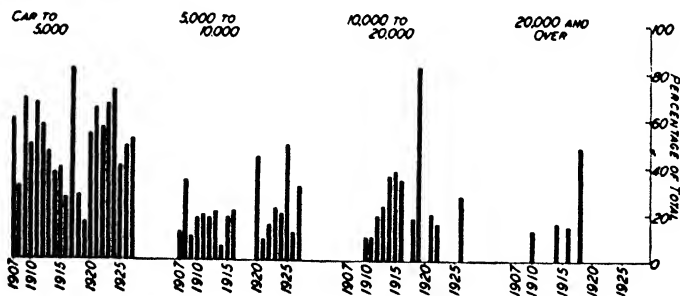
**TOMATOES, COMPANY 35, 1907-1927**

by each size group—in number of cases—as percentages yearly totals)

**OF ORDERS**



**OF BUSINESS**



smaller classes and did only 16 per cent of its business in the carload group. Eighty-two per cent of its volume

<sup>18</sup> As a matter of fact, one of these orders was for 40,000 cases and the other for 23,000.

was taken up by orders of ten thousand to twenty thousand cases.

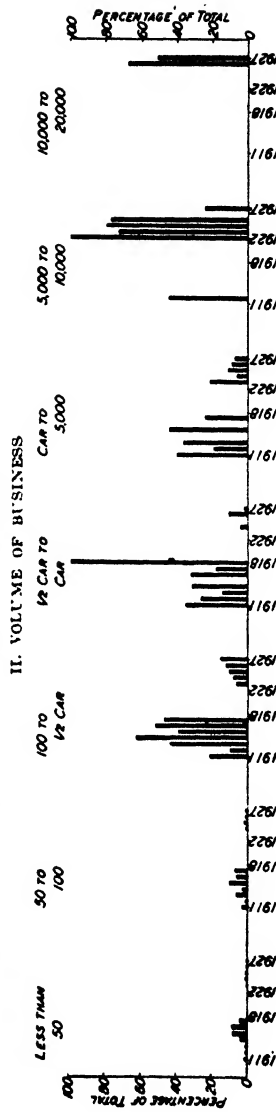
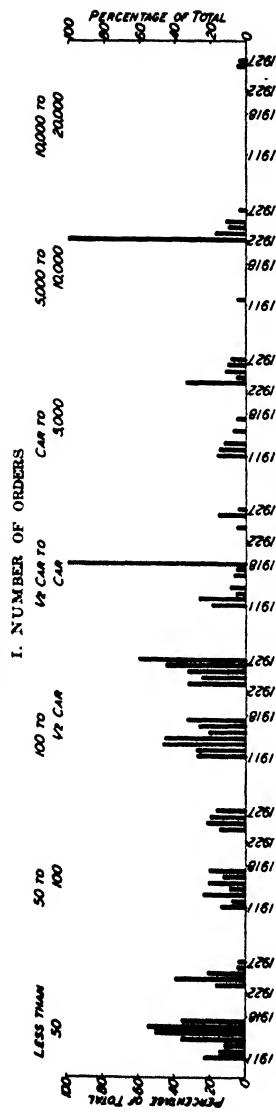
*The real post-war shift for this company has not been to "small orders" but from large orders to orders in the carload class.* Study of the volume in specific years since the war will show that the shifting in business has been in three groups ranging from a car to upward of twenty thousand cases.

This company's history contrasts interestingly with the experience of corn canners in that we have here a larger number of very large orders prior to the war than has been the case since. A glance at pages 120-122 and 129 will remind us that big orders in corn were practically unknown prior to 1917.

This company's records should not be left without indicating that much of its history can be explained in terms of its own business practices and achievements fully as well as it can in general business conditions. In certain years it has been able to secure enormous orders from well-known preservers and chain-store buyers and to secure very large orders from wholesalers. Such orders account for the situation in 1918 and 1919 particularly. They account for it in part in 1920. It would be difficult to bring better evidence to show the necessity of any one company studying its own situation before concluding that it was wholly within the grip of general business conditions. While those conditions which were supposed to multiply small orders were plentiful in 1920 and 1921, this company was not troubled by them.

# SIZES OF ORDERS FOR CANNED TOMATOES, COMPANY 42, 1911-1918 AND 1922-1927 \*

(Number of orders and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)



\* During years 1919-1921 no orders for tomatoes were received by this company. As only one order was received in 1918, one in 1922, and six in 1923, the percentage distribution for these years must not be considered representative.

## 2. THE RECORD OF A WESTERN CANNER

As this company (Company 42) canned few if any tomatoes from 1918 to 1923, its record breaks into two sections. These may be compared to advantage.

*A comparison suggests at once that the smaller types of orders were relatively fully as frequent in the earlier period as they are in the latter.* (See chart on page 143.) This is true of all orders up to half a car. It is also noticeable at once that a given percentage of small orders is now calling for a smaller proportion of volume than was formerly the case. Half carload and carload business is much less important to this company since the war than it was before it, but orders for five thousand cases or more have become significant. Beginning with 1922 such orders have always been more than 70 per cent of its business. In only one year prior to the war period were any such orders secured. Because of the gap in the record it is impossible to tell at what point these larger orders began to be significant, but the shift to such orders in the post-war situation is obvious. In its post-war growth in larger orders, the record of this tomato canning company is quite in line with records of corn canning companies.

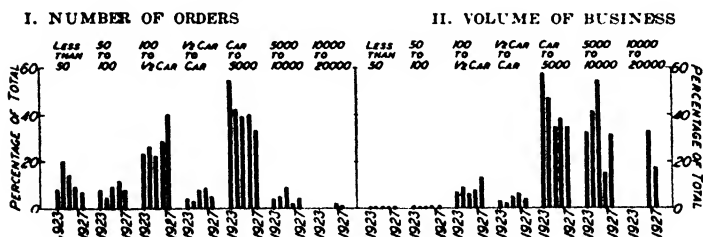
## 3. A STUDY OF FOUR COMPANIES FOR A FIVE-YEAR PERIOD

The five-year history of four companies combined leads to the conclusion that the most important shifting in sizes of orders for tomatoes is among the larger types

of orders. The chart on this page shows a decline in the frequency and significance of the smallest orders and a sharp increase in the frequency and significance of orders from one hundred cases to half a car. But the shift in volume accounted for from year to year has been taking place in orders from a carload up. Carload orders have been declining both in frequency and as part of the volume. But in the first three years of the period orders

#### SIZES OF ORDERS OF FOUR TOMATO CANNERS, 1923-1927

(Number of orders and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)



of five thousand to ten thousand cases advanced rapidly to take up the volume lost to carload business; and while these dropped off, as did carload orders, in 1926, a still larger type of order appeared for these companies—the order from ten thousand to twenty thousand cases. It appears then, that for these four companies two significant things are occurring. The smallest types of orders are diminishing in frequency; the moderate orders—those from one hundred cases to half a car—are becoming more common; and orders of large size, that is, five thousand cases and above, have been playing an increasing rôle.



### D. Sizes of Orders for Canned Fruit

The fruit pack of the United States represents a very wide variety of commodities grown in various proportions in widely scattered sections of the country. Data concerning the sizes of orders received for pears, peaches, pineapples, berries, and cherries were obtained for varying periods of years. The data on berries and cherries were secured from only one company, but these data fortunately cover a period of seventeen years, from 1911 to 1927, inclusive. The same concern (Company 42) also furnished data on orders for canned pears for the same number of years. Seven other companies furnished information on canned pears for periods varying from one to nine years. The statistics on the size of orders for peaches were secured from four companies for periods of from one to four years. Only one company (Company 25) reported on pineapples, this report covering a three-year period. Because of differences in the data and in the periods involved, it is best to consider these commodities separately rather than in a general compilation. We shall examine first the returns on pineapples, thus disposing of what is the least significant data.

#### 1. PINEAPPLES

Company 25, a very large concern, reported on sizes of orders received for pineapples. The record covers only three years.

*For all of the period reported this company has done a large part of its business in small orders. In each*

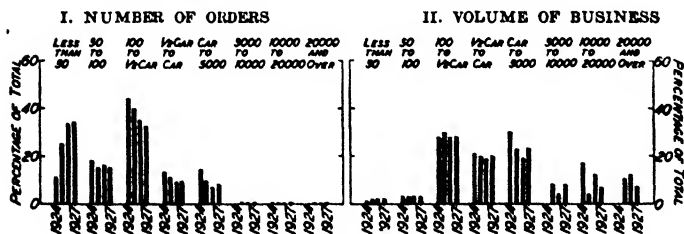
of the years reported, more than 90 per cent of the orders received have been for less than half a car. Over 65 per cent of the company's volume has also been done in these small orders. The two smallest types of orders have been decreasing in relative frequency. The volume done in the three smallest types of orders has been increasing; the volume done in orders of half a car or larger has been decreasing.

## 2. PEACHES

Next let us give attention to the reports of the four companies which gave information on peaches. These are shown in the chart on this page.

*The fact that orders for less than fifty cases have trebled in relative frequency during the past four years is the outstanding feature of these data. The decline in relative frequency in other groups which accounts for this increase in orders of the smallest type is to be found in the orders from one hundred cases to half a car,*

**SIZES OF ORDERS OF ALL REPORTING PEACH CANNERS, 1924-1927**  
(Number of orders and volume of business represented by each size group—in number of cases—each year, as percentages of respective yearly totals)



and from a car to five thousand cases. An appreciable, though less marked, decline has also occurred in the importance of orders for half a car to a car.

Volume changes are less obvious, except in the group for a car to five thousand cases. The volume in the larger groups has fluctuated considerably from year to year, but no trend for the period is observable. Large orders are a far less significant part of the volume for this commodity than they are for the standard vegetables. Volume represented by the smallest types of orders has increased but is still a small part of the total volume.

### 3. PEARS

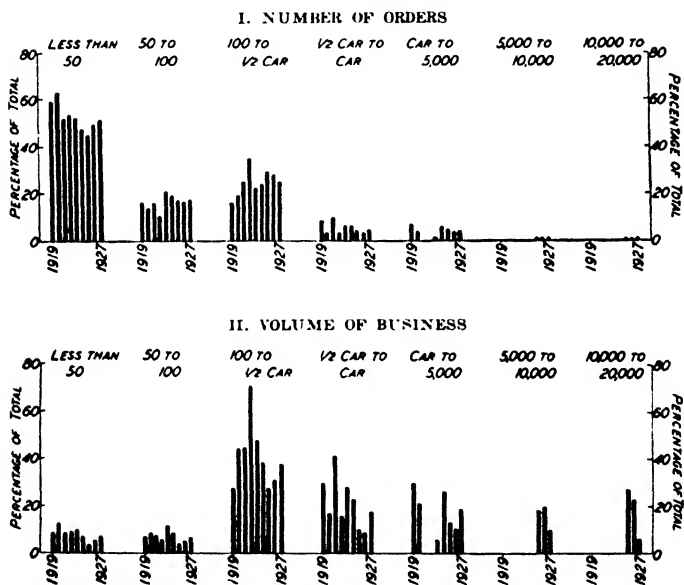
The order history of pear-canning companies will be studied through the evidence of all companies reporting from 1919 to 1927, of what is believed to be a typical company for the same period, and of another company for a longer period. In the study of the experience of the group of all companies, it is well to bear in mind that there are great variations between the experiences of different individual companies.

*The combined record of pear-canning companies shows that a plurality of orders placed in each year were for less than fifty cases. (See chart on page 149.) While this record does not go back far enough to furnish evidence for the depression period of 1914-1915, there were many small orders in 1920. This was followed by an almost steady improvement to 1925, and then a tendency toward more small orders.*

A greater part of the volume of orders each year was in sizes of one hundred cases to a carload. Both the number and volume of orders of from one hundred cases to one-half a carload increased rapidly from 1919 to

SIZES OF ORDERS OF ALL REPORTING PEAR CANNERS, 1919-1927

(Number of orders and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)



1922, reaching 70.4 per cent of the volume in 1922. After 1922, the volume in this group dropped rapidly until 1925, and has been rising rapidly since then.

The record of what is believed to be a typical fruit canning company (Company 14) shows tendencies in

line with those observed for vegetables. This company's experience is in canning pears in the New York fruit belt, for a period of nine years. The smallest size of orders has been pretty steadily on the increase since 1922, although 1925 is the year when they registered greatest relative frequency. This company, however, had a rapid growth of such orders from 1919 to 1921 and then a sharp decline.

The volume of business done in these orders of less than fifty cases has, for this company, followed in general the same trend as the relative frequency with which orders have been received, although the volume done in these orders in 1927 is disproportionately large. The declines have been mostly in orders of from one hundred cases to half a car, and of from one-half car to a car, though in 1927 the orders and volume in the latter group advanced very strongly.

Company 42, though probably less typical, is worth considering, because its record is complete from 1911 through 1927. It is important to know that this concern does a comparatively small business in this product,\* also that a very large proportion of its orders have always been for less than fifty cases. The proportion of orders of this size dropped significantly during 1918, 1919, and 1920, but since 1920 has never been less than 95 per cent of the total, and has in three different years been 100 per cent of the total. That is, in every year

\*This notwithstanding the fact that it is one of the largest companies reporting and one which does a very large volume in certain canned vegetables.

since 1920 there has been a larger proportion of the orders in this class than there was in any year before 1918. The company has had an order for as much as half a car only once during the entire period, the occasion being in the year 1919.

The volume of business done in the various sizes of orders has also been largely in the less than fifty case division, although this has been more pronounced since 1920 than before. Striking exceptions are in the years 1916, 1918, and 1920, when there was a considerable volume shipped in lots of from one hundred cases to one-half a carload.

#### 4. BERRIES

The best evidence on size of orders for berries is the record of Company 42 from 1911 through 1927, inclusive.

*The record of this concern for a period of seventeen years is excellent evidence that the present is not the first period of small order buying in this commodity.* (See chart on page 153.) From 1911 to 1915 orders for less than fifty cases as a proportion of the total increased in every year, reaching in 1915 as high a point as they have reached in any but three years since 1920. Following 1915 came a decline in these orders, with the low in 1919. What followed may be interpreted in either of two ways. We may conclude that there has been a steady trend upward with certain years leaping ahead of the general tendency. To the writer a more accurate interpretation is that there have been two periods when small-order buying has been pronounced.

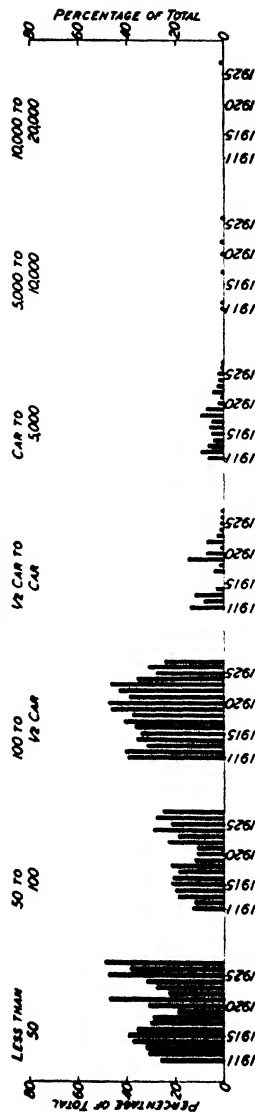
A first and rapid increase came in the years 1920 and 1921. Then there was an immediate improvement coinciding with improved business conditions, followed in turn by a rapid increase in small orders, running through into the present time. The years 1921, 1925, and 1927 were years when these orders were most common. In orders from fifty to one hundred cases a less marked cyclical movement has taken place, and the highs and lows fall somewhat differently. Orders for one hundred cases to half a car followed an almost opposite tendency so far as frequency was concerned, while the same tendency in a much more striking way occurred in the orders of one-half a car to a car. The examination of the frequency of orders ranging from a car to five thousand cases shows the same tendency as the two large groups just considered. There have been few orders for more than five thousand cases.

A scrutiny of the relation of orders to volume shows a double movement for the period. The significance to volume of the three smaller types of orders increased from 1911 to 1915. It declined sharply in 1917, and with some variations increased in importance to 1921, 1922, or 1923, depending upon the particular group of small orders under discussion. Since that period the importance of these three types of orders in volume terms has been growing less. For the last two years, as in certain other years during the period, orders for more than five thousand cases have been significant in the distribution of the volume. This is particularly true of 1927, when an order for ten thousand cases or more was

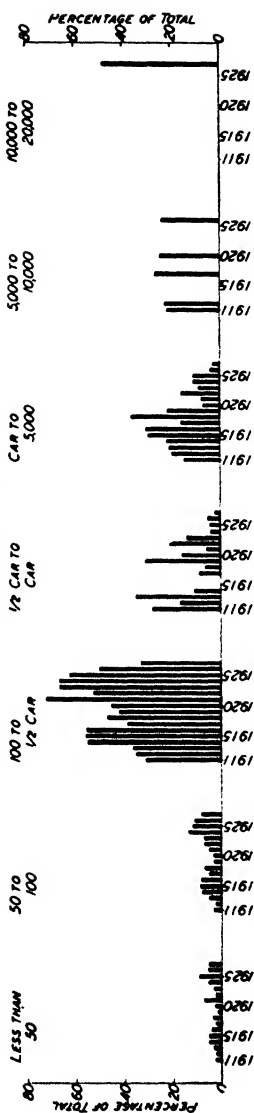
# SIZES OF ORDERS FOR CANNED BERRIES, COMPANY 42, 1911-1927

(Number of orders and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)

## I. NUMBER OF ORDERS



## II. VOLUME OF BUSINESS





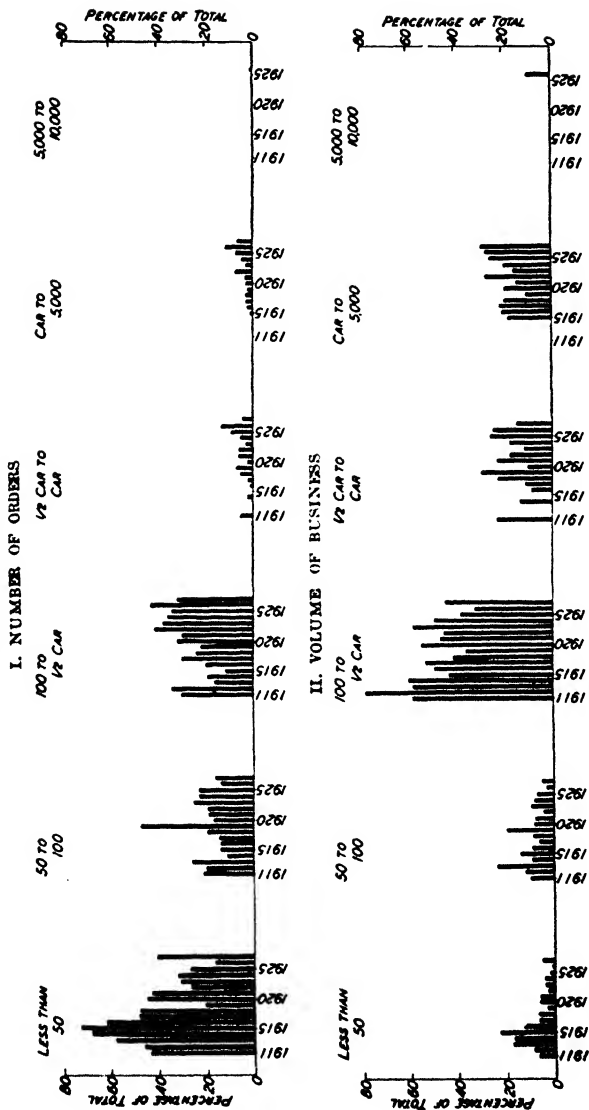
received. As this order alone accounted for 48 per cent of the volume, it is easy to see what its effect would have been if it had been distributed over the smaller groups. As this is the only order of this size received by the company for this commodity during the whole period, it furnishes some reason for believing that large orders are beginning to play a larger part in the distribution of this commodity, as we see to be the case in some of the vegetables discussed above. Such a conclusion must be drawn, however, with a recognition of the fact that this is the experience of a single year. In considering the preceding statements one should turn to the charts on pages 114-115, 126-127, and 132-133 to notice similarities and differences suggested. For both corn and peas 1915 and 1920 were, as here, years with a large number of small orders.

## 5. CHERRIES

The data secured on cherries cover the same period as that covered by the berries record—the seventeen years from 1911 to 1927, inclusive.

*Orders for cherries have passed through a cyclical movement similar to that observed in orders for berries.* (See chart on page 155.) But this evidence, furnished by Company 42, which alone reported for this commodity, indicates that there has been a marked difference during the period since 1923, which is to be accounted for by rapid relative increase in orders for one hundred cases and above. The smallest type of orders dominated the trade in this product from 1911 to 1915, these orders being 72.5 per cent of all orders received in 1915. Their

(Number of orders and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)



decline in frequency was rapid until 1920, but in that year and in 1921 they were again important. Then came a drop, followed by a sharp increase in 1927. Except for 1927 one would undoubtedly draw the conclusion that small orders were on the decline rather than on the increase in this product. The movement for larger orders, however, has been under way. As a percentage of the number of orders, it is noticeable in all of the classes of orders for one hundred cases or more, and as a percentage of volume it is outstanding in orders ranging from half a car to five thousand cases. In 1926, for the first time in the history of the company as recorded, an order for five thousand cases or more was received. As in the case of berries, this may well be an omen of a new type of order in the canned cherries trade.

### **E. Sizes of Orders for Canned Salmon**

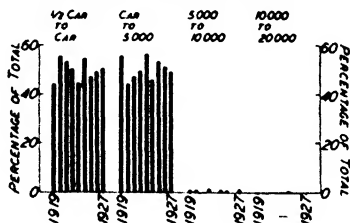
Reports on the sizes of orders for canned salmon were received from only two companies, and these companies with somewhat different characteristics. The first, Company 43, is a very large packer of salmon whose information covered the years 1919-1927, inclusive. The other, Company 44, appears to be a smaller concern, the records of which run from 1924 through 1927. The larger packer sent figures only for orders ranging in size from a half carload up; data for smaller units not being available. (See chart on page 157.) Such changes in the sizes of shipments as appear, therefore, are probably not significant. The changes in the sizes of orders reported are shown herewith. In both cases because the years are so similar, and in the second case because the

period is short, it has not seemed worth while to translate the data into proportions of volume. In the case of Company 43 the comparative uniformity of these percentages can hardly be taken as reflecting business conditions

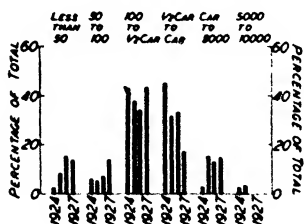
### SIZES OF ORDERS FOR CANNED SALMON

(Number of orders represented by each size group—in number of cases—each year, as percentages of respective yearly totals)

#### I. COMPANY 43, 1919-1927



#### II. COMPANY 44, 1924-1927



as the shipments, because of the integrated character of this concern, are largely intra-company.

The distribution of orders for the second company is undoubtedly more indicative of buying practices of distributors. This record for the four years which the data cover appears in the chart on this page. The increase

in orders for less than fifty cases, and the increase in 1927 of orders for fifty cases to half a car, together with the decline in orders for one-half car to a car, are all apparent. This packer has not been losing orders for a carload to five thousand cases. Such orders are much higher than in 1924 and show no significant decline for any of the last three years. Although the period involved is brief, it may be worth while noting that this last fact is rather in line with conclusions reached for the largest types of orders when studying canned vegetables.

## CHAPTER IX

### COMPARATIVE SIZE OF ORDERS (Continued)

The study of comparative size of orders is continued in this chapter with samples from a rather wide variety of industries and trades. The samples have not been grouped together, as was done in the first section of the preceding chapter, nor has any trade been given the extensive study allowed the canning industry. The chapter, rather, furnishes a somewhat specific picture of the changes in the size of orders in a number of businesses where there has been some discussion of the small order problem.

#### I. THE SIZES OF ORDERS OUT OF WAREHOUSES

In this section we shall consider the sizes of orders shipped out of that interesting institution known as the merchandise warehouse. Of all types of warehouses<sup>1</sup> the merchandise warehouse is least known to the layman. It is necessary to outline briefly its significance in the marketing scheme. These warehouses, existing in all larger cities, are repositories where many manufacturers

<sup>1</sup> The Department of Commerce classifies warehouses as follows: merchandise, household goods and storage, bonded warehouses, special commodity warehouses, cold storage, and field warehouses. See Department of Commerce *Bulletin*, "The Merchandise Warehouse in Distribution."

hold goods in store between the time of form production and the time of sale to other manufacturers, or to wholesalers, jobbers, or retailers. They are also used to a considerable extent by wholesalers and large retailers to house reserve purchases. The general merchandise warehouse is essentially "a service link" utilized by buyers or sellers because they find purchase of storage space a more economical or effective part of their scheme of buying and selling than a warehouse operated by themselves.

The merchandise warehouse is a business enterprise privately operated for profit. Its work cannot be appreciated without realizing fully that besides storing goods it is a distributor of merchandise, ready to act as the agent of its clients in receiving orders and shipping goods by rail or truck to any point directed. To perform his work effectively, the warehouseman must, therefore, not only provide safe storage, insurance, the conditions required by the physical properties of the goods left in his charge, and warehouse receipts which can be used as collateral, but facilities for opening packages, re-marking, re-wrapping, re-directing, delivering, recording, and at times billing for his customers. More commonly such actions are taken upon an order from the client of the warehouse, but it has now become not unusual for a warehouseman to provide office space for the representatives of his clients, the warehouse thus becoming an office of the customer. "The warehouse," as one prominent warehouseman puts it, "does practically everything except sell goods for the manufacturer."

There has been a growing complaint among warehousemen that they are being asked to make "an excess number of deliveries." Mr. W. V. Little, Executive Secretary of the American Warehousemen's Association, says:

The warehouseman is being called upon to make deliveries in increasingly small lots from stocks that are carried with him by manufacturers, making the unit cost to the warehouseman much greater than heretofore.<sup>3</sup>

A prominent warehouseman, following a study of the size of his deliveries, stated:

In making an investigation I find that our average number of deliveries per carload has greatly increased in the past few years. For example, on a washing powder account where we formerly delivered in 50, 70, or 100 case lots I found our present average deliveries to be about 15 cases.<sup>4</sup>

Such statements and the important place of the merchandise warehouse in distribution make significant a sample of the change in the size of orders shipped out.

*What has actually been happening to the size of warehouse deliveries?* Figures were secured from the tallies and orders of two of the three warehouses of Griswold and Walker, Inc., Chicago.<sup>5</sup> The data cover all of the outgoing shipments from these two warehouses for the years 1919 to 1927, inclusive. Figures were taken for proprietary medicines, which include such items as Sal Hepatica, Nuxated Iron, Calotabs, S. S. S., Milk of Magnesia, and Syrup of Figs; for canned fish, including

<sup>3</sup> In a letter to the author, dated October 21, 1927.

<sup>4</sup> D. S. Adams in a letter to the author dated March 7, 1928.

<sup>5</sup> In connection with these data I am indebted to Professor E. A. Duddy, through whose courtesy a contact was made with the company in question, and to Mr. E. E. Ferebee, who took off the figures from the records of the company.

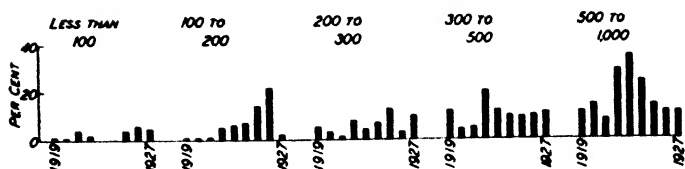


## HAND-TO-MOUTH BUYING

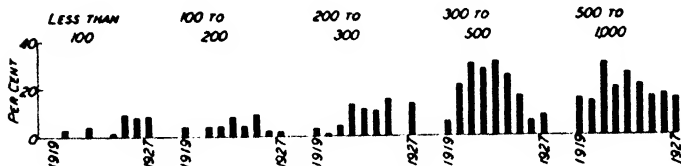
## SIZES OF ORDERS OUT OF MERCHANDISE

(Number of orders in each size group—in pounds—

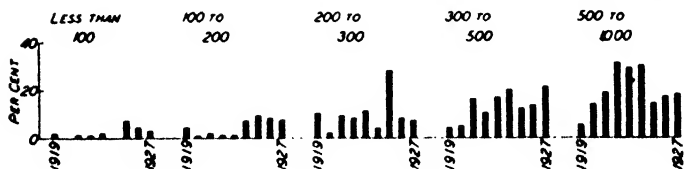
I. CANNED



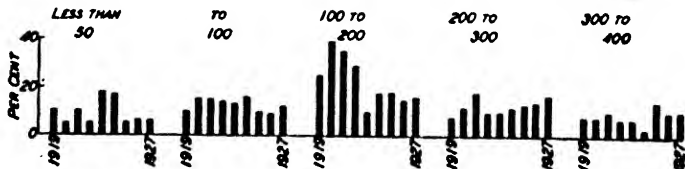
II. CANNED



III. CANNED



IV. PROPRIETARY



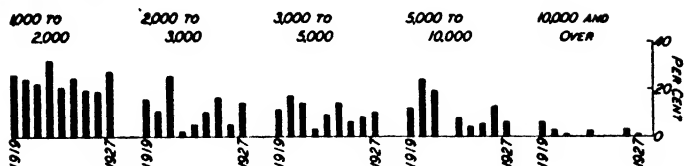
# SIZE OF ORDERS

163

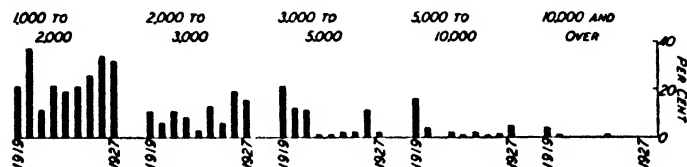
## WAREHOUSES, 1919-1927

as percentage of designated yearly total)

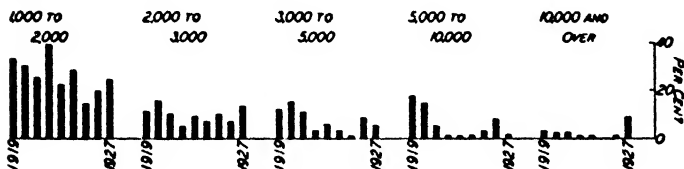
### VEGETABLES



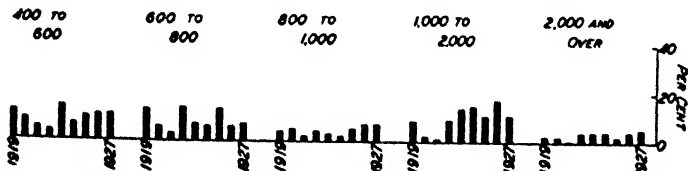
### FISH



### FRUIT



### MEDICINE



canned salmon, tuna fish, codfish, and shrimp; for canned vegetables, including canned corn, peas, beans, tomatoes, spinach, and sweet potatoes; and for canned fruit, including peaches, pears, apricots, plums, apples, pineapples, and certain preserves and marmalades.

In dealing with commodity classes so inclusive as these, and with an institution which handles goods for so many customers and delivers to so many buyers as does the merchandise warehouse, many things must be considered in examining the figures. For example, if a merchandise warehouse having a set of clients who had been in the practice of selling to wholesalers lost these clients and obtained others whose goods were sold to retailers, we might expect a decrease in the size of orders as a result. Obviously the opposite situation might equally easily obtain. So, also, a change in the amount of one type of article stored might make a change. The more commonly used medicines, for example, are ordinarily shipped out in larger orders than the less popular ones.

The sizes of orders for the various types of commodities considered have been classified in each case in a manner which seems appropriate to the goods in question, and the percentage of the total number of "orders out" of various sizes are shown for the period of years 1919 to 1927, inclusive. Canned vegetables will be discussed first.

*The proportion of small orders for canned vegetables out of warehouses has increased.* (See chart on pages 162-163.) While the chart classifies orders into ten groups, with all of which warehousemen are concerned,

what has been happening to orders of the smaller sizes may be emphasized by considering as one group the smallest three classes. This puts together all orders for less than 300 pounds. The percentage which such orders are of the total number in each year is as follows:

1919.....	7.1	1924.....	13.9
1920.....	4.5	1925.....	31.2
1921.....	6.5	1926.....	31.8
1922.....	13.8	1927.....	17.2
1923.....	10.6		

It will be seen at once that 1926 shows the highest percentage, as 31.8 per cent of the orders fall in that class in that year. The year 1925 ranks next with 31.2 per cent, followed by 1927, with 17.2 per cent. A rather sharp change seems to occur between 1921 and 1922, when there is a jump from 6.5 per cent to 13.8 per cent. The warehouseman handling a large volume of canned vegetables seems to have real occasion for complaint concerning the increased number of small orders when we notice that for the years 1925, 1926, and 1927 an average of 26.7 per cent of his shipments of this commodity have been in lots of less than 300 pounds, while in the years 1919, 1920, and 1921 an average of only 6.0 per cent of his deliveries were in orders of that size.

It is obvious that the number of orders for less than 100 pounds increased in relation to the total rather markedly in 1925, 1926, and 1927, and that orders in the 100 to 200-pound group increased even more sharply, especially in 1925 and 1926. This latter group of orders, however, shows a sharp decline in 1927. The next higher class, orders for more than 200 but less than 300 pounds, shows a trend towards increase in number for

the period. The same can hardly be said for those of 300 but less than 500 pounds, which seem to be running rather uniformly. Orders weighing 500 pounds or more show a definite decline, especially those from 500 to 1,000 pounds. The orders for more than 1,000 but less than 2,000 pounds show some tendency to be going down in numbers, but the tendency is not strongly marked. In examining the chart on pp. 162-163, one gains definitely the impression that orders for over 2,000 pounds are tending to decrease as a proportion of the total, although there is considerable variation from year to year. As the larger classes are reached the number of orders involved is too small to make conclusions very satisfactory.

*Orders for canned fish out of warehouses may also be a matter of concern to warehousemen.* In the chart on pp. 162-163 one sees quickly what a marked increase occurred in 1925, 1926, and 1927, compared with previous years, in orders of less than 100 pounds. There was a rise in 1923 and 1925, particularly, in orders of 100 and less than 200 pounds. In the orders in the 200 to 300-pound group a sharp advance took place in 1922 which was maintained, with some increases, to 1927 with the exception of the year 1926. Orders in the 300-pound group, since 1921, appear to be definitely declining as a proportion of the total, as do those in the class 500 to 1,000 pounds. On the other hand, the orders, ranging in size from 1,000 to 2,000 pounds, appear to be increasing as a proportion of the total, while the evidence concerning orders of larger sizes seems to indicate that they are declining as a proportion of the total. The number of

orders involved in the upper classes is too small to make conclusions very safe.

In handling this commodity the warehouseman again has some justice in his complaint that small orders are increasing. During the first three years of the period under consideration only 6.3 per cent of the orders delivered out were under 300 pounds in weight. An average of the last three years shows that 21.6 per cent of the orders handled were in that class.

*Orders for canned fruits out of warehouses show tendencies similar to those described above.* (See chart on pp. 162-163.) The proportion of all orders below 500 pounds, excepting possibly those in the 200 to 300-pound group, tends to increase. Those in the 500 to 1,000-pound class pass through a sort of double cycle ending, in 1927, more than three times as large a part of the total as they were in 1919, but only a little more than half what they were in 1922, 1923, or 1924. The general tendency for orders of 1,000 pounds or more to fade out is quite evident, though the ups and downs of the movement are worth noting. As in the preceding cases, conclusions must be drawn less certainly as we pass into the larger classes and the data become more sparse.

For canned fruits ordered out of warehouses, however, as for canned vegetables and fish, the figures bear out the warehouseman's complaint. Lumping together all orders for less than 300 pounds received in the years 1919, 1920, and 1921, and doing the same for the years 1925, 1926, and 1927, we find that a yearly average of

only 9.9 per cent of all orders were under 300 pounds in the first period, while an average of 26.9 per cent were in that group in the later period.

*Shipments of proprietary medicines out of warehouses show markedly different tendencies from those of canned foods.* (See chart on pages 162-163.) It is evident that there has been less increase in the proportion of smaller orders for this commodity. Orders under 50 pounds,<sup>5</sup> with a single exception, are a considerably smaller percentage of the total in each of the years 1925, 1926, and 1927 than in any of the years 1919, 1920, or 1921. For the same comparison no exception is needed for orders between 50 and 100 pounds, and this statement is strikingly true for orders of 100 but under 200 pounds. In this class such "small orders" are less than half as frequent on the average during the last three years as they are in the first three. Putting together all orders under 200 pounds, we find that while about half of the orders for proprietary medicines out of warehouses fall in this class during 1919, 1920, and 1921, less than a third of the orders may be so grouped for 1925, 1926, and 1927. The average of the percentages for the two periods are 54.1 and 31.9, respectively.

The classes of 300 pounds and over show many small variations but on the whole are marked by their uniformity. The group of orders from 1,000 to 2,000 pounds is the only exception. Here the size of the bars

<sup>5</sup>The distribution of proprietary medicines made necessary a class for orders of smaller size than any used in connection with canned foods.

in the chart suggests that an increase in the percentage of orders of this size has been scored and maintained.

Summarizing: The orders out of warehouses indicate that sweeping generalizations as to changes in the size of such orders are risky. For canned foods all of the evidence is one way though in somewhat varying degree. Without doubt, however, a larger proportion of the orders for such commodities out of warehouses are "small orders." The single piece of evidence available, however, for another commodity shows a somewhat contrary tendency in small orders and a decided lack of change for orders of the larger sizes.

Individual warehousemen or their associations could, with profit, conduct investigations to determine the lines in which orders are growing smaller and those in which an opposite tendency or no tendency is discernible. If the warehouseman is bearing added handling costs (see pages 390-393), he is justified in charges which cover them. But such charges cannot, with justice, be applied promiscuously. They should be applied to the goods from which the new cost incidence arises. This is a proper field for trade association study.

## II. VARYING SIZES OF ORDERS RECEIVED BY WHOLESALE GROCERS

The wholesale grocery trade is one in which complaints concerning the declining size of orders are heard very frequently. Yet accurate information on the matter is extremely difficult to obtain. The number and detail



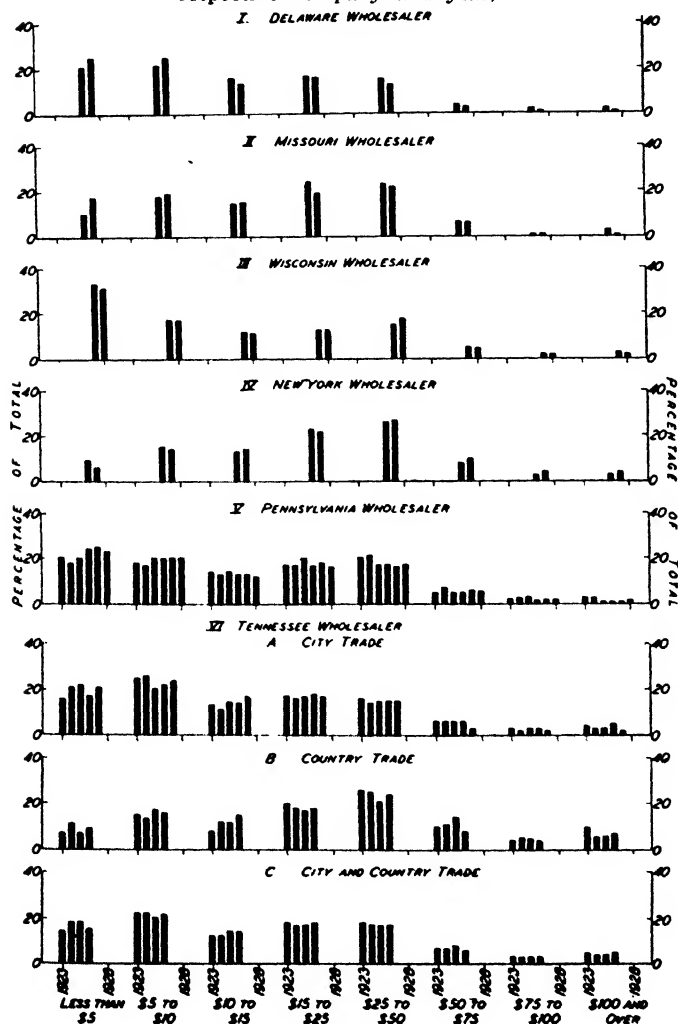
of wholesale grocery orders appear to act as forces preventing either files or records being kept for any extended period. There has been secured, however, data showing the distribution of orders and changes in the average size of orders of several companies, representing various parts of the United States and for various periods of years, and material making it possible to compare the average size of orders received by 25 concerns in 1922 with the average of the same concerns in 1927.

The figures of six companies will be examined first. The chart on page 171 shows graphically the changes in the relative frequency of orders of eight different sizes as they have been received by these grocers over the periods of years indicated.\*

*An examination of the chart shows that small orders have become relatively more common and large orders relatively less common during the past few years, but that changes have been by no means universal. The Delaware wholesaler and the Missouri wholesaler may be discussed together, as they have had very similar experiences. The record of each shows an increase in the proportion of small orders and a decrease in the proportion of large ones. Orders under \$5 became materially*

\*This material was obtained directly from officers of the companies concerned or from their books, excepting in the case of the Tennessee grocer, in which the data were obtained through the courtesy of Mr. J. W. Millard of the Department of Commerce. In each case it is based on a sample, as follows: for the concerns in Pennsylvania, Delaware, Missouri, and Wisconsin, a record of orders for the month of March for the years indicated; for the New York concern, the month of September for the years indicated; for the Tennessee grocer, one week in September for the years indicated. The Missouri, Pennsylvania, and New York grocers correspond to wholesalers A, B, and D, respectively, whose sales records are shown in the chart on p. 334.

**SIZES OF ORDERS RECEIVED BY SIX WHOLESALE GROCERS**  
(Number of orders for each size group, for each company, as percentage of total number of orders for the respective company and year)



more common, especially for the Missouri wholesaler, from 1926 to 1927. Orders of from \$5 to \$10 also advanced in frequency for both of these grocers, and orders from \$10 to \$15 in each case show only 1 per cent of change. All orders for \$15 or more became less frequent relatively for both of these concerns in 1927 than they had been in 1926.

The records of the Wisconsin and New York grocers are interestingly different.<sup>1</sup> These two companies are alike in showing comparatively little change for the two years considered, and both are different from the two companies considered above in that the smaller orders have shown no tendency to increase as a percentage of the total—indeed, the tendency has been rather the other way—while orders in the groups above \$50, with one exception, show an increase in comparative frequency.

The Pennsylvania grocer furnishes in some ways the best evidence of what is happening inasmuch as the record covers a series of six years, from 1923 to 1928, inclusive. The graphic representation shows very vividly the increased proportion of orders under \$5 and from \$5 to \$10 as contrasted with the downward trend in relative frequency of orders for \$10 or more. The chart is interesting in that while the movement has not been extreme in any case it indicates that there has been a fairly continuous tendency of the sort described. The year 1928, however, seems to have marked something of a change in this company's business. Orders of the

<sup>1</sup> It should be noted that the Wisconsin figures are for 1927 and 1928 rather than 1926 and 1927.

smallest type are less relatively common, and those of \$25 to \$50 and those of \$100 or more show a slight comparative increase.

The record of the Tennessee grocer is less uniform than that of the Pennsylvanian just discussed, although the general conclusions reached above are supported so far as the two smaller types of orders and the three larger types are concerned. This is especially true if we look only at the city sales of the Tennessee grocer. In that part of the chart where city and country sales are combined there seems to be no general upward trend of small orders until we reach the \$10 to \$15 orders. The middle groups have maintained a decided uniformity when both city and country sales are considered; the larger groups have shown a slight tendency to decline.

One interesting difference between city and country sales should be noticed. Orders in all three of the groups under \$15 are less relatively frequent in country sales. The difference is particularly noticeable in orders under \$5. All classes of orders above \$15 are more frequent relatively in country sales. Country merchants are still giving this Tennessee grocer 7.4 per cent of their orders in sizes of \$100 or more, while city buyers are sending in only 1.6 per cent of their orders in this size.

It is worth while for any one particularly interested in the changes in the size of grocery orders to compare, especially for the two companies with long histories, the percentage of orders in each size for the first year and the last year shown. When this is done, one is struck with the comparatively small changes which have taken

place, but at the same time with the fact that there have been changes pretty consistently moving a larger proportion of the orders towards the small size of order groups. What has occurred has been a general movement towards smaller orders rather than a decided shift out of any one type of orders and into any other one type.

*Some additional light on changes in the size of orders received by wholesale grocers can be had by noting the average size of order over a series of years. The table*

CHANGES IN AVERAGE SIZE OF WHOLESALE GROCERY ORDERS  
1921-1927

(Average in dollars for each of six companies)

Year	Com- pany 1	Com- pany 2	Com- pany 3	Com- pany 4	Com- pany 5	Com- pany 6
1921.....	...	...	...	...	33.99	...
1922.....	...	...	...	...	33.69	22.30
1923.....	...	...	...	25.41	34.20	25.70
1924.....	...	...	...	24.89	35.85	29.20
1925.....	...	...	18.77	22.98	38.32	30.00
1926.....	17.17	16.38	18.10	22.04	37.78	28.90
1927.....	17.57	15.47	19.26	20.91	35.81	28.00

The period covered by Companies 1 and 2 is too brief to make the record of much significance, although it is worth while to notice that while the average size for one company has increased, that for the second has declined. Company 3 shows a slight increase in average size of

\* Data were obtained directly from officers of the companies. Companies 1, 4, and 5 correspond to the Delaware, Pennsylvania, and New York grocers, respectively, whose orders are discussed on pp. 170-174. Companies 3, 4, and 5 correspond to wholesalers C, B, and D, respectively, the deviations in whose sales are shown in the chart on p. 334.

order for the three-year period 1925-1927. Company 4, through a period of five years, shows a continuous decline with a total loss of, roughly, 20 per cent. For Company 5, for which the longest series of data is available, the period ended with an average size of order considerably larger than that with which it started. It showed an almost continuous gain from 1921 through 1925, with a decline in 1926 and 1927. The changes through the period, however, are not great.

When one compares the experiences of these companies, especially Companies 4 and 5, he is impressed with the different records made under supposedly similar business conditions. The difference between the record of Company 4 and the record of Company 5 is probably accounted for by a difference in merchandising policy. To a greater extent than Company 4, Company 5 sells a recognizedly high grade, thoroughly branded, and extensively advertised merchandise. Its sales are made through retailers\* who consider the brand of this company as their major one, who depend upon its popularity for sales, and who are believed to patronize this house largely to the exclusion of others. Expecting to continue to buy this company's merchandise in the future as well as in the present, and relying upon the propriety of its prices, they are less concerned about carrying small stocks than are those retailers who buy from more varied sources and with perhaps a sharper eye to immediate price conditions. This is by no means the only case in which there is evidence that the manufacturer or whole-

\* This company also does a fair volume of jobbing business, and it was impossible to separate this from strictly retail sales.

salers selling a branded and advertised product is less influenced by the general forces conducive to hand-to-

**AVERAGE SIZE OF ORDERS RECEIVED BY 25 WHOLESALE GROCERS \***  
(In dollars)

Company	1922	1927	1927 Compared with 1922
1.....	26.23	29.31	Up
2.....	22.43	23.45	Up
3.....	38.54	39.32	Up
4.....	30.00	30.00	Same
5.....	22.24	22.63	Up
6.....	14.00	14.00	Same
7.....	33.69	35.94	Up
8.....	40.43	40.47	Up
9.....	22.30	28.00	Up
10.....	26.29	20.84	Down
11.....	22.00	16.00	Down
12.....	40.00	30.00	Down
13.....	36.92	28.67	Down
14.....	25.00	20.00	Down
15.....	25.00	17.00	Down
16.....	30.00	24.00	Down
17.....	25.00	20.00	Down
18.....	23.50	18.25	Down
19.....	29.50	24.00	Down
20.....	28.58	26.19	Down
21.....	27.73	21.46	Down
22.....	27.37	19.09	Down
23.....	75.00	40.00	Down
24.....	19.29	27.30	Up
25.....	100.00	90.00	Down
All companies....	32.44	28.23	8 Up; 15 Down; 2 Unchanged

\* This table was compiled from data obtained through the courtesy of the National Wholesale Grocers' Association and the Metropolitan Life Insurance Company. It is believed not to include any of the companies heretofore discussed.

mouth buying than are others. (See pages 48-50.) Also it has been the policy of this wholesaler to reduce the number of lines and to push the more profitable lines.

Company 6 has had an experience similar to that of Company 5; that is, size of orders increased each year from 1922 to 1925 and declined slightly in 1926 and 1927. This company has been reducing the number of brands carried in a single line.

*A comparison of the average size of orders received by 25 wholesale grocers in the two years 1922 and 1927 shows that the size of orders has declined.* The average size of order for all companies declined from \$32.44 in 1922 to \$28.23 in 1927. The average, however, conceals the fact that by no means all the companies registered a decline in average size of orders. Of 25 companies reporting, 8 reported an increase and 15 a decrease. Two companies recorded no change.

### III. IN THE WHOLESALE DRUG TRADE

The small size of orders has been a problem of the wholesale drug trade for some years. In this business, indeed, orders are often of a size which make the term wholesale seem inappropriate if not somewhat ludicrous. The "twelfth-of-a-dozen" order for a proprietary medicine is by no means new, and the order for a sixth of a dozen, a quarter of a dozen, and a half a dozen has been frequent.<sup>10</sup>

But to what extent, if at all, have the smaller types of orders become a greater part of the total orders of wholesale druggists in the period since 1920? While many

<sup>10</sup> It is estimated that 55 per cent of the wholesale drug trade is in proprietary goods; that is, those articles which certain individuals have the exclusive right to manufacture and sell.



comments have been made by wholesalers to the effect that small orders are on the increase and that they are a menace to the trade, quantitative evidence was difficult to secure. Information was obtained, however, which vividly contrasts the size of orders received for proprietaries in 1920 by a large Middle Western drug wholesaler with those received by the same company in 1925. The data cover both city and country sales.

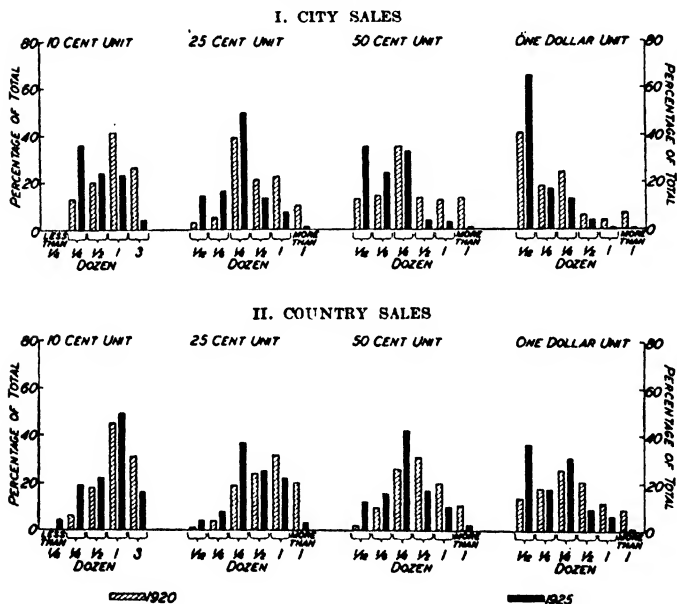
*Orders for small quantities of proprietaries have greatly increased in relative frequency; the reverse is true for larger orders.* The facts on this matter are so clearly shown on page 181 " and in the chart on page 179 that there is no need to discuss them at length. If we look at the city sales, it will be seen at once that in each type of unit—10 cent unit, 25 cent unit, 50 cent unit,

"It is particularly desirable in a business which handles thousands of items, as does the wholesale drug trade, that the size of orders be considered in some physical, rather than monetary, term. There are few lines of merchandising in which costs of handling vary so completely with the variety of items ordered. An eight dollar order, for example, may be for an original shipping case containing one dozen units. Another eight dollar order may call for two dozen items, one-twelfth dozen of each different item. In the latter case each one-twelfth dozen would require for shipment the performance of eight or nine operations, such as scanning, checking, picking up, o.k'ing, ticketing, pricing, extending, and billing. These operations would have to be repeated 24 times on the second order, while the single shipping case would go direct from the scanner to the full stock floor and from there to the shipping room. Such work as pricing would be greatly simplified, and there would be no extending whatever. So far as relative costs of handling are concerned, it is the number of small items on the order which the wholesale druggist regards as serious. As one druggist states the matter: "A business like ours, if it must handle a very large quantity of items that are excessively small, will have a very high operating cost. If by any means we can increase the *item quantity* we shall be able to reduce the percentage of operating cost."

and 1 dollar unit<sup>12</sup>—the orders of smaller size have materially increased as a percentage of the total orders received, and the orders of larger sizes have materially

**SIZES OF ORDERS FOR DRUG PROPRIETARIES RECEIVED BY A LARGE DRUG WHOLESALER, 1920 AND 1925**

(Number of orders of each size, for the several price units, as a percentage of total for each price unit for indicated year)



decreased. In the 25 cent unit, for example, orders for one-twelfth of a dozen increased from 3 per cent of the

<sup>12</sup> The terms "seller," "number," and "size" are often used rather than unit; thus a 10 cent seller is a size of package that retails for 10 cents. The term unit rather than size has been used here to distinguish the concept from the size of order.

total in 1920 to 14.5 per cent in 1925, while orders for more than a dozen of the same unit decreased from 10 per cent to 1 per cent. The 1 dollar unit shows a marked increase in the frequency of one-twelfth dozen orders and a decrease in the frequency of every larger size. Observation will show similar changes in the relative frequency of other sizes.

Country sales by the same concern show comparable changes in the same direction. An examination of the percentage increases shows that changes towards smaller orders have been more extreme in country sales than in city sales. It appears, therefore, that while city orders run actually smaller, those changes in communication, transportation, and the technique and philosophy of retailing which have led to diminution in the size of orders given by drug retailers, have been more significant in country districts than in the metropolitan area. Concretely this appears to mean that those facilities of telephone, trucks, busses, and parcel post which were common in city trade in 1920 advanced more rapidly for country than for city use in the five-year period 1920-1925.

*Between 1920 and 1925 the increase in the proportion of volume handled in small orders was much less than might be expected from the increased percentage of small orders.* (See table on page 182 and chart on same page, which may be compared with the chart on page 179 and the table on page 181.) For both city and country trade the wholesale druggist has been manipulating a larger number of orders for the same volume of

NUMBER OF ORDERS FOR DRUG PROPRIETARIES AT WHOLESALE,  
BY SIZE AND PRICE UNITS, 1920 AND 1925 <sup>a</sup>

(Number of orders of each size as percentage of total,  
for each price unit)

10 CENT UNIT

Size of Order	City Sales			Country Sales		
	1920	1925	Percentage Increase or Decrease <sup>b</sup>	1920	1925	Percentage Increase or Decrease <sup>b</sup>
Less than ¼ dozen.....	•	13.0	} 177	—	4.0	...
¼ dozen.....	13.0	23.0		6.0	19.0	217
½ dozen.....	20.0	24.0		18.0	22.0	22
1 dozen.....	41.0	23.0	—44	45.0	49.0	9
3 dozen.....	26.0	4.0	—85	31.0	16.0	—48

25 CENT UNIT

½ dozen.....	3.0	14.5	383	.5	4.5	800
¾ dozen.....	5.0	15.5	210	3.5	8.5	143
1 ¼ dozen.....	39.0	49.0	26	19.0	37.0	95
1 ½ dozen.....	21.0	13.0	—38	24.5	25.0	2
1 dozen.....	22.0	7.0	—68	32.5	22.0	—32
More than 1 dozen.....	10.0	1.0	—90	20.0	3.0	—85

50 CENT UNIT

¾ dozen.....	13.0	35.0	169	2.5	12.5	400
1 ¼ dozen.....	14.0	24.0	71	9.5	16.5	74
1 ½ dozen.....	35.0	33.0	—6	26.0	42.0	62
2 ½ dozen.....	13.0	4.5	—65	31.0	17.0	—45
1 dozen.....	12.0	3.0	—75	20.0	10.5	—48
More than 1 dozen.....	13.0	.5	—96	11.0	1.5	—86

\$1.00 UNIT

¾ dozen.....	41.0	65.0	58	14.0	35.5	154
1 ¼ dozen.....	18.0	17.0	—6	18.0	17.5	—3
1 ½ dozen.....	24.0	13.0	—46	26.0	31.0	19
2 ½ dozen.....	6.0	4.0	—33	21.0	9.0	—57
1 dozen.....	4.0	.5	—88	12.0	6.0	—50
More than 1 dozen.....	7.0	.5	—93	9.0	1.0	—89

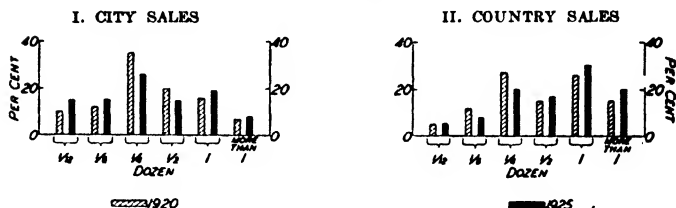
<sup>a</sup> These figures were obtained from the records of a large Mid-Western wholesale drug corporation. Data, having been read from charts, are accurate only to ½ of 1 per cent.

<sup>b</sup> The minus sign indicates decrease.

<sup>c</sup> There is reason to suppose that in 1920 there were some orders for less than ¼ dozen, but that they were lumped with the ¼ dozen orders.

PROPORTION OF A LARGE WHOLESALE DRUGGIST'S BUSINESS DONE  
IN ORDERS OF INDICATED SIZES

(Value of orders of indicated sizes expressed as a percentage of total sales)



PROPORTION OF A LARGE WHOLESALE DRUGGIST'S BUSINESS DONE  
IN ORDERS OF INDICATED SIZES, 1920 AND 1925

(Value of orders of indicated sizes expressed as a percentage of total sales)

Size of Order All Price Units	City Sales			Country Sales		
	1920	1925 <sup>a</sup>	Percentage Increase or Decrease <sup>b</sup>	1920	1925	Percentage Increase or Decrease <sup>b</sup>
1/2 dozen.....	10	15.4	54	5	5.0	0
1/6 dozen.....	12	14.6	22	12	8.0	-33
1/4 dozen.....	35	26.0	-26	27	19.9	-31
1/2 dozen.....	20	15.9	-21	15	17.0	13
1 dozen.....	16	19.0	19	26	30.5	17
More than 1 dozen.....	7	8.1	16	15	19.6	31

<sup>a</sup> 1925 percentages do not total exactly 100 because of discrepancies in data.

<sup>b</sup> Minus sign indicates decrease.

business. The disparity between the increased percentage of small orders and the business done in them is less striking in city trade than in country business. In country sales small orders in no case represent a larger part of the volume in 1925 than in 1920.

Orders of one dozen or more, though declining in relative frequency in both city and country, represent in both cases an increased percentage of the business done.

*Country trade is still a comparatively "large order" trade.* While it has nothing to do with *changes* in the sizes of orders, some readers may be interested in the comparative size of orders in city and country trade in a single year—1925. These are accordingly set out in the table on this page. It will be seen that city buyers

COMPARATIVE SIZE OF ORDERS RECEIVED BY A LARGE WHOLESALE DRUGGIST FROM CITY AND COUNTRY, 1925

Value of orders of indicated sizes for indicated price units, expressed as a percentage of total sales of respective price units)

I. CITY SALES

Price Unit	½ Dozen	⅓ Dozen	¼ Dozen	½ Dozen	1 Dozen	More than 1 Dozen	Total
10 cent	...	...	16.0	23.0	37.0	20.0	96.0*
25 cent	4.0	19.0	29.0	19.0	20.0	9.0	100.0
50 cent	15.0	20.0	39.0	12.0	12.0	2.0	100.0
1 dollar	42.5	19.5	21.0	9.0	6.0	2.0	100.0

II. COUNTRY SALES

10 cent	—	—	6.5	10.5	35.0	48.0	100.0
25 cent	1.0	2.0	18.0	22.5	38.5	18.0	100.0
50 cent	3.5	17.5	24.0	20.0	26.0	9.0	100.0
1 dollar	15.5	12.5	31.0	15.0	22.5	3.5	100.0

\* Failure to total 100 per cent is caused by discrepancies in data.

take a much larger part of their volume in small orders than do country buyers—this in spite of the forces tending to urbanize rural areas.

IV. RECEIVED BY TEXTILE MILLS

In 1926 the Harvard Bureau of Business Research included in a survey of textiles distribution a study of

the size of orders received by three cotton mills and one selling agent for the period 1921 to 1925, inclusive."<sup>12</sup> The Bureau found a definite decline in the size of orders for the period, the arithmetic average in 1925 proving to be 44 per cent smaller than the average in 1921 and the median order in 1925 being 45 per cent smaller than the median order in 1921. The changes found are set forth in the table on this page.

ORDERS RECEIVED BY MILLS—BY YEARS \*

Size and Number of Orders Received by 3 Cotton Mills and 1 Selling Agent from Sample of All Types of Customers for All Classes of Products, 1921-1925

Year	Total Quantity of Orders (in linear yards)	Total Number of Orders	Average Size (Arithmetic, in linear yards)	Median Size (in linear yards)
1921 .....	83,060,613	2,451	33,888	8,000
1922 .....	57,578,020	2,136	26,956	5,400
1923 .....	73,078,711	2,316	31,554	6,000
1924 .....	55,943,537	2,735	20,455	4,300
1925 (9 mos.)	45,082,035	2,383	18,918	4,400
Total .....	314,742,916	12,021	26,183	6,000

\* Taken from Bulletin No. 56 of the Bureau, p. 163.

In commenting on this table, the Bureau points out that the average size of order varied directly with the aggregate quantities of goods purchased, excepting in the year 1925. The year 1925 exhibits in this respect a tendency contrary to that shown in the other years studied.

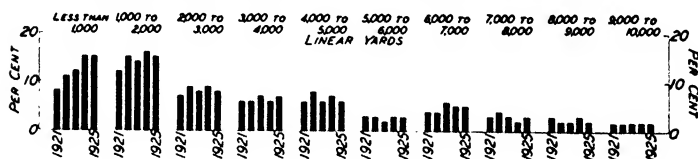
<sup>12</sup> Harvard Bureau of Business Research, *Distribution of Textiles*, Bulletin No. 56.

The chart on this page shows graphically the distribution of orders under 10,000 yards, according to size, for the five years studied by the Bureau.<sup>a</sup> A study of this chart shows at once that there was a great increase in the proportion of orders of small size in 1925 as compared with 1921. The sharpest increase in the ratio of such orders to the total occurred between 1921 and 1922.

The trend towards the 1925 situation was not a uniform one; indeed, a study of the records in 1923 might

INCREASING PROPORTION OF SMALL ORDERS FOR COTTON PIECE  
GOODS RECEIVED BY TEXTILE MILLS, 1921-1925<sup>a</sup>

(Number of orders in indicated size groups expressed as a percentage of the total number of orders of all sizes)



<sup>a</sup> For data see Harvard Bureau of Business Research, *Distribution of Textiles*, 1926, p. 170.

have led to the conclusion that the situation was definitely on the mend.

An examination of orders by types of purchasers led the investigators to the conclusion that, while the size of orders from wholesalers showed a downward trend, such orders showed "less variation in size than did orders

<sup>a</sup> The data for this chart are taken from the Bureau's publication, *Distribution of Textiles*, p. 170. A similar distribution appears on p. 168 of the same publication, but the years 1922 and 1923 are omitted. It seems worth while to include them here as the distribution, particularly in 1923, shows some variance to the trend suggested by examining only 1921, 1924, and 1925.



from cutters up and mail order firms," and that "the size of direct orders placed by department stores apparently varied more widely during the five years following 1920 than those from wholesalers, cutters up, or mail order firms."<sup>15</sup>

While the Harvard study presents no evidence beyond 1925, there is reason to believe that small orders have not ceased to be a problem in the industry. A statement of Walter D. Hines, President of the Cotton-Textile Institute, on June 1, 1928, declares:

I may say that it is the general belief of the Institution's staff that hand-to-mouth buying conditions as described in the bulletin, *Distribution of Textiles*, have been continuing since that time.<sup>16</sup>

This statement is supported by letters from mill owners and managers in 1928 which include such comments as: "I should say that the tendency towards small orders is, if anything, more aggravated than at the time the study was made," and "Lots have become smaller as time goes on." Such statements however, when unsupported by quantitative data, must always be regarded with some scepticism.

#### V. RECEIVED BY SHOE MANUFACTURING COMPANIES

Data have been obtained from two of the largest shoe manufacturers in the United States. Both of these are companies with enormous sales, and their experience reflects the buying attitude of the retailers very widely scattered over the country.

<sup>15</sup> *Ibid.*, Conclusion 4, p. 188.

<sup>16</sup> In a personal letter to the author.

*The first of these two companies*" reports a decrease in the size of orders but believes there are certain modifying conditions which should be taken into account. This company hesitated to give data of a statistical character on size of orders, expressing the belief that new conditions in the shoe trade, or at least in its own trade, which might account for such changes would lead to their misinterpretation. It reported, however, as follows:

Comparing our record of the number of invoices issued in 1922 with 1927 indicates an increase of approximately 31 per cent" in the number of invoices for a given quantity of goods, but we are quite sure that it is altogether wrong to draw the conclusion from this figure that there were 31 per cent more orders received for a given quantity of goods in 1927 than in 1922.

There are so many conditions with reference to stocks on hand and the necessity for issuing back orders—new styles adopted and separate orders taken for these styles because they will not be ready for delivery until a somewhat later date, etc.—that we are somewhat loath to give you these figures.

The reader must make his own interpretation of this statement. But the conditions referred to are exactly those which are complained of by shoe manufacturers and are important among those which are alleged to to have been the cause of the increased number of orders for a given quantity of goods. It seems therefore reasonable to conclude that this company's statement not only

" This is Shoe Company A, the same company from which were secured the figures on advance bookings, discussed on pp. 36-45.

" Judging from the trade comment the hand-to-mouth period was well under way by 1922. This statement is, therefore, the more striking. It is unfortunate, however, that no precise data on the period 1916 to 1919 could be obtained.

justifies the belief that its average order is smaller, but that the decrease in the size of the order has been due to those forces to which decrease in the size of orders are very commonly ascribed.

*The records of a second large shoe company show definitely a decrease in the average size of the order received during the years 1923 to 1927.*" These facts are shown clearly by an examination of the table below, which

#### SIZE OF ORDERS FOR SHOES, COMPANY B

(Average number of dozen pair per order for indicated periods)

Period	1923	1924	1925	1926	1927	1928
January . . . . .	4.4	3.4	2.7	3.1	2.5	2.6
February . . . . .	4.4	3.7	4.3	3.5	3.5	3.2
March . . . . .	3.6	3.7	3.5	2.8	3.2	2.7
1st Quarter . . . . .	4.1	3.6	3.5	3.1	3.1	2.8
April . . . . .	2.6	2.7	2.4	2.2	2.2	2.0
May . . . . .	2.5	2.6	2.1	2.2	2.2	2.0
June . . . . .	3.7	2.3	2.0	1.8	2.1	1.8
2nd Quarter . . . . .	3.1	2.6	2.2	2.1	2.2	1.9
1st Half . . . . .	3.5	3.0	2.6	2.5	2.5	2.3
July . . . . .	3.4	2.6	2.4	2.5	2.4	..
August . . . . .	3.8	3.6	3.2	3.3	3.4	..
September . . . . .	3.8	2.9	2.8	2.7	2.6	..
3rd Quarter . . . . .	3.7	3.0	2.8	2.8	2.8	..
October . . . . .	3.4	2.2	2.3	2.2	2.0	..
November . . . . .	2.7	1.9	2.4	1.8	1.9	..
December . . . . .	2.8	2.6	1.9	1.6	1.6	..
4th Quarter . . . . .	3.3	2.1	2.3	1.9	1.9	..
2nd Half . . . . .	3.3	2.4	2.4	2.3	2.3	..
Year . . . . .	3.42	2.85	2.67	2.48	2.41	..

sets out the average number of dozens per order for each month for the years 1923 through the first half of 1928, inclusive. In every month of 1927 the average

"This company will be referred to in this section as Shoe Company B.

order received is smaller than the average order received in corresponding months in 1923. The average size of order received in 1923 is 3.42 dozen pairs and in 1927 is 2.41.

The decline in the average size of order was somewhat greater in the period 1923-1925 than in the period 1925-1927. This is shown not only by the averages for the year but by the fact that if we take the first of these two periods and compare the average size of order received in each month of the years 1924 and 1925 with the corresponding months for the preceding years respectively, we find 18 instances out of the 24 possibilities in which a decrease in the average size of order is shown. There are six instances of increase. Comparing each month of the years 1926 and 1927 with the corresponding months, respectively, for the years 1925 and 1926, we find eight cases in the two years in which the average size of order received has increased over the average size for the corresponding month in the preceding year, and four cases in which there was no change, thus leaving only twelve instances in which there was a decline. The period of sharpest decline corresponds exactly with the period of greatest smoothing out of the flow of goods for this company, which indicates that small orders and stable flow are concomitant phenomena. The same period shows the greatest smoothing out of flow in the shipments of Shoe Company A.\*

\* Data on monthly shipments secured from both of these companies made it possible to compare for the years considered the changes in seasonal movement. The method used is the same as that described on page 280.

Such conclusions drawn from the data do not agree wholly with the observation of one officer of this concern, who stated that it was the feeling of the company that "from the beginning of 1925 hand-to-mouth buying began to make itself felt, and it reached its worst stage during the last six months of 1926 and then gradually improved." A scrutiny of the figures leads rather to the conclusion that it was at its worst, so far as most marked decline was concerned, between 1923 and 1924. Decline in size of orders continued, even though less rapidly, through all the years studied and, so far as data for 1928 are available, was still in progress.

## **VI. SIZE OF ORDERS IN FRESH MEAT SALES**

Although the methods of distributing fresh meat are probably familiar in a general way to many readers, a brief description of those methods may be helpful in understanding order changes. By the large packers two principal schemes are employed. The first involves shipment from their packing plants to their branch houses, located in cities of such size and character as they believe will justify their establishment, and sales from these branch houses to the various retail outlets—hotels, restaurants, institutions, and, chiefly, retail meat markets or stores. The branch house, which is thus the key to the system, is a combination of cold storage warehouse, sales force, and accounting office. Owned by the packer, it serves him as a wholesale agency.

The second principal method of distribution by the large packers is through their car routes. A car route consists of a series of customers located in towns along

a railway line, who, it is believed, can be reached more advantageously by direct freight shipment than by truck delivery from branch houses. A salesman assigned to one of these car routes takes orders from the customers and transmits the orders to the central office at which a refrigerator car is loaded accordingly with the orders placed by the car route customers.

Fresh meat, being a highly perishable product, must be moved and stored under refrigeration except only when short distances or periods are involved. It is cooled by artificial means after slaughter, is kept iced during freight transit, is iced at branch houses, and is kept in refrigerators or refrigerator counters in retail stores. The expense involved<sup>21</sup> in such care is one of the principal forces tending always to keep stocks of fresh meats low as they flow through the marketing process.<sup>22</sup>

Moving as these goods do, always under the pressure of risk from deterioration and consequent high costs for protection, one might assume that retailers would long ago have learned to order in the smallest possible units, and that an examination of the facts would show no change in the size of retailers' orders for fresh meats. All packers agree that in recent years more frequent

<sup>21</sup> This should not be interpreted to mean that handling of fresh meats is a more expensive process than that for many other commodities. The National Distribution Conference of the United States Chamber of Commerce reported that the operating expenses in the wholesale branch of meat packing was 3.9 as compared with 5.6 for lumber wholesalers, 10.6 for wholesale grocery companies, 15.6 for wholesale drug concerns, and 19.4 for wholesale hardware dealers. Swift and Company, 1928 *Yearbook*, p. 35. The costs of retailing meat have been estimated at 17.3 per cent of sales by the Harvard Bureau of Business Research.

<sup>22</sup> Stocks of meats are discussed on pages 243, 356-357, and changes in the flow of meats through trade on pages 306-307.

deliveries to the retailer have been required, but some believe that this has not been caused by smaller orders. These contend that more frequent deliveries, by bringing the product to the consumer in a better condition, have increased consumption, thus enabling the retailer to buy in as large orders as before, even though more frequently. The figures from one of the larger plants of a national packer give some color to this view, as is shown in the table below. These show the average weight per order received at one typical plant of a national packer for the years 1914-1927.<sup>22</sup>

Year	Average (In pounds)
1914.....	219.1
1915.....	217.9
1916.....	221.1
1917.....	239.4
1918.....	237.7
1919.....	233.5
1920.....	213.1
1921.....	186.1
1922.....	197.8
1923.....	210.9
1924.....	210.3
1925.....	201.2
1926.....	202.1
1927.....	202.7

*The weight of evidence, however, indicates that orders by and deliveries to retailers are decreasing in size. The*

<sup>22</sup> These weights include all products sold by this company at this outlet. The high average for the years 1914-1920 are, in the words of the packer concerned, "largely due to activities in canned goods which were discontinued in 1920. The low average during 1921-1922 was largely due to industrial conditions." This packer continues: "Our general experience indicates that in buying packing house products the dealer buys a smaller quantity of each item per order; but that he has increased the variety of items so that the total weight varies very little." The packer has requested that the name of the company be not disclosed.

table on this page is in point. Figures which show for a period of three years the average tonnage per sales ticket in 13 large cities scattered well over the United States were furnished by one of the large packers.

AVERAGE SIZE OF ORDER RECEIVED BY A NATIONAL MEAT PACKER  
(Average number of pounds per order, in 13 cities—actual data multiplied by an unknown constant <sup>a</sup>)

City	1925	1926	1927
Atlanta <sup>b</sup> .....	173	123	118
Birmingham <sup>b</sup> .....	173	151	146
Cleveland.....	143	117	117
Dallas.....	113	109	99
Denver.....	134	111	103
Boston <sup>b</sup> .....	116	110	104
Houston.....	89	84	87
Los Angeles.....	78	74	70
Philadelphia <sup>b</sup> .....	161	153	112
Pittsburgh <sup>b</sup> .....	128	118	121
St. Louis.....	105	94	84
San Antonio.....	186	152	132
San Francisco.....	69	66	72

<sup>a</sup> The number in each case has been modified to conceal the company's actual operations. This has no effect, however, on their efficacy in showing *changes* in the size of orders.

<sup>b</sup>A Great Atlantic & Pacific Tea Company warehouse is located in this city.

A scrutiny of the table shows that in every one of the 13 cities, with the exception of San Francisco, the average size of order is lower in 1927 than in 1925. Not only is a decline shown when comparing 1925 with 1927, but with the exception of three out of the twelve cases where a decline has occurred there has been a decline for 1926 as compared with 1925 and again for 1927 as compared with 1926. In Pittsburgh and in Houston, a decline is



registered for 1926 as compared to 1925, but in each case a gain has been made in 1927. In Cleveland a drop from 143 to 117 occurred as between the years 1925 and 1926, but the average of 117 was maintained in 1927. The same company reported that the change in average "tonnage" per sales ticket, for the business as a whole was, for 1925-1927, as follows:

	Per cent
1926 less than 1925.....	0.25
1927 less than 1926.....	2.01
1927 less than 1925.....	2.26

Data have also been secured from the records of a Texas branch house of one of the large national packers. The average weight per order delivered by this branch has been declining, as the figures below clearly indicate.

Year	Average (In pounds)
1923.....	82
1924.....	73
1925.....	70
1926.....	65
1927.....	69
1928.....	66 *

\* Average for 5 months.

The decline has been practically continuous during the period. In 1928 the average size of order is 85 per cent of what it was six years earlier, a decline of 15 per cent.

*There is some evidence that chain stores call for smaller meat deliveries than do unit stores.* The fact that in five of the thirteen cities represented in the table on page 193 sales are being made to the Great Atlantic and Pacific Tea Company, which is really a purchaser in

wholesale quantities for its retail outlets, must not mislead the reader, as the packer makes store door delivery and a separate sales ticket is made out for each such delivery." Of those cities having A. & P. purchasers all show a lower average size of order in 1927 than in 1925; and in the eight other cities, seven of the eight show a lower average. Moreover, the percentage of decline has been greater for the five cities where meat is sold to the Great Atlantic and Pacific Tea Company than in the eight other cities. The relationship is as follows:

	1925	1927	Per cent Decline
Average order, A. & P. cities.....	150	120	20.0
Average order, other cities.....	114	95	16.3

In a study issued by the Institute of American Meat Packers<sup>22</sup> it was shown that the average size of order for two meat packers was as follows in 1928: for Company A, \$35.00; for Company B, \$32.50. The relative number of what were called small orders and the sales volume produced by them was reported for the two companies as follows:

Size of Order	COMPANY A		COMPANY B	
	Per Cent of Total Orders	Per Cent of Total Volume	Per Cent of Total Orders	Per Cent of Total Volume
Less than \$ 5...	22.4	1.9	25.2	2.3
Less than 10...	39.1	5.5	43.7	6.6
Less than 15...	50.5	9.6	54.7	10.9
Less than 50...	80.7	34.8	82.9	35.6

<sup>22</sup> The packer in question reports that warehouse delivery is made in Philadelphia and Boston, but the figures do not indicate significantly larger deliveries in those cities.

<sup>23</sup> Greer, Howard C., *The Cost of Handling Small Orders and Accounts*.

*The forces making for smaller meat orders are found both in trade practice and in changed habits of life. Of the trade practices a packer says: "Some years ago retailers of meats generally bought both sides of a dressed beef animal. With improvements in packer service and the assurance of regular supplies, retailers found it practicable to buy only one side of a beef at a time. Still further improvements and the fact that retailers in some neighborhoods found that their customers want cuts of beef from only certain parts of animals have caused dealers to buy their beef in quarters, or in certain wholesale cuts."*

The changes in the customers wants have been the results of a variety of influences. Behind such change in demand there is the force of many changes in American standards and habits of life. To our grandparents it might have seemed strange to buy fresh pork otherwise than by the pound (the quarter was a common unit of sale in country districts during the winter), but to the modern apartment-dwelling housewife there is nothing peculiar in asking for two pork chops, and to many such housewives the idea of purchasing a ham, or a side of bacon would seem, and indeed might well be, preposterous. If families are small, or if meals must be cooked in small quarters and perhaps in brief hours before or after employment, menus will be planned accordingly.

Competition, especially as it expressed itself through a desire for service to modern housekeepers, has been

<sup>22</sup> Swift & Company, 1928 *Yearbook*, p. 18. A wholesale cut is in most cases a comparatively small part of a carcass.

another force tending to reduce the size of orders given to meat distributors. In some cases the new types of service have taken the form of package goods which, coming in units appropriate to apartment living, has made it convenient for the retail meat dealer to purchase accordingly. A complementary influence has been the willingness of the packers to give the dealer a more frequent delivery service and to encourage him to improve his own methods of meat handling and his stock turnover. Where the salesman previously called once a week, he has been encouraged to solicit orders more frequently, in some cases for city trade as often as every two days.

## VII. IN THE HARDWARE TRADE

The belief that orders were declining in size and that many purchasers were buying in such small lots that their trade was hardly worth its cost caused the Hardware Council<sup>27</sup> to make a study of the matter, the results of which were presented to the Council in 1926.<sup>28</sup> Although the published returns did not contain figures making possible an accurate comparison of the size of orders for a series of years, it was the conclusion of those making the study that the percentage of small orders had

<sup>27</sup>The Hardware Council is composed of four manufacturers from the American Hardware Manufacturers' Association, four wholesalers, two each from the National Hardware Association of the United States and the Southern Hardware Jobbers' Association, and four retailers from the National Retail Hardware Association. The secretaries of the several associations are members *ex officio*. It is an advisory body devoted to the study of trade questions of common interest.

<sup>28</sup>This report, called "The Small Order Problem," was included in a bulletin on *Trade Betterment* published by the Council in March, 1927. The report has been supplemented by correspondence with the Secretary of the National Hardware Association.

been increasing. There was considerable indirect evidence that this conclusion was justified. Many manufacturers, for example, reported methods which they were introducing to overcome what they referred to as the tendency towards "small order parcel post business."

*The chief value of the report was the evidence furnished as to the size of orders current in the hardware trade.* To a question asking manufacturers whether they received orders as small as \$20 or less, and if so what percentage of their business was done in orders of that size, 75 replied that relatively few of the orders received by them were for less than \$20. The figures presented by the remainder indicated that from a fraction of 1 per cent to 75 per cent of their orders were in that class.<sup>\*</sup> Information as to the size of orders received by wholesalers was somewhat more satisfactorily presented. The following statements from the summary of wholesalers reports are pertinent.

Percentage of customers' invoices over \$20.....	35
Percentage of customers' invoices of \$20 and less...	65
Average amount of invoices over \$20 ..	\$65
Average amount of invoices of \$20 and less.....	\$7

Data for this study were also collected from retailers concerning their orders to wholesalers. A few excerpts are appropriate.

Percentage of orders over \$20.....	46
Percentage of orders for \$20 or less.....	54
Average amount of orders over \$20.....	\$55.98
Average amount of orders for \$20 and less..	\$6.71
Percentage of orders which came parcel post..	28.7

---

<sup>\*</sup> The total number replying to this inquiry was not stated.

Concerning retailers' purchases, the following comments were included in the report:

Retailers' purchases amounting to more than \$20 range from a low of \$22.12 to a high of \$123.18.

Two retailers ordering from two jobbers reported all their orders to be under \$20 and to average \$3.94.

The smallest reported percentage of orders under \$20 was 22.3.

*What conclusions may be drawn concerning the comparative size of orders during the "hand-to-mouth period"?* A number of statements are needed for a summary answer:

1. It is certain that the evidence does not justify the conclusion that small orders, since 1920, have been becoming a larger proportion of the total in every line of business. Not a few concerns have been experiencing an increase in the average size of order received.

2. An increase in the relative frequency of small orders and a decrease in the average size of order, though by no means universal, have been occurring in many types of American trade. There is some reason to believe this condition to be more general in wholesaling than in manufacturing.

3. Even where the average order in 1927 is smaller than it was five, six, or seven years earlier, or where the proportion of small orders has increased, the trend has seldom been a continuous one. In manufacturing this fact is particularly noticeable. The year 1923, in which business generally improved, brought in many cases large orders and a smaller proportion of small ones.

4. In certain industries, of which food canning is outstanding in the data studied, the proportionate increase in the number of small orders has by no means been accompanied by a proportionate increase in the percentage of business done in small orders. This suggests:

a. That in so far as a small order is secured and handled at no less expense than a large order, an increase in the percentage of small orders adds to selling costs.\*

b. That for a business in which a large dollar volume is sold in relatively few orders, even a considerably increased percentage of small orders, though annoying, adds nothing significant to costs of marketing expressed as a percentage of the dollar volume.

c. That for a business in which there are typically many orders in proportion to the dollar volume of business done, a considerable percentage increase in the number of small orders may add significantly to marketing costs.

5. While the period 1920-1927 has been a small order period, it has to a striking degree in certain industries been a large order period. In those industries, commitments of a size never known before the war have become a common post-war phenomena.

6. A considerable amount of pre-war evidence furnishes a basis for concluding that "small orders" were known at certain times before 1917. There is reason to believe, however, that small orders have been a more serious phenomenon and a more continuous one since 1920.

\* For a discussion of costs of small orders, see p. 373.

## CHAPTER X

### HAND-TO-MOUTH SHIPPING?

In the two preceding chapters attention has been centered on the changes which have taken place in the size of orders for a series of years and for various commodities. As was pointed out (see page 97), it was not always possible in that discussion to distinguish sharply between orders received and shipments made, although ordinarily, where the two did not correspond, it was orders as commitments that were involved. The central theme in this chapter, however, is shipping rather than ordering. To what extent, if at all, is it a falling off in the size of shipments rather than of orders that furnishes ground for complaint? Perhaps the current phrase should read "Hand-to-Mouth Shipping." There are two questions:

1. What changes, if any, have been taking place in the size of *shipments*?

2. How do changes in the size of *shipments* compare with changes in the size of *orders*?

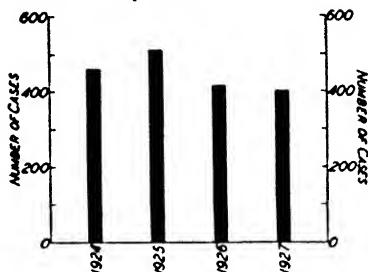
The study of these questions has been limited to certain data from the canning industry—data which are not necessarily significant for other industries.



### I. ARE SHIPMENTS GROWING SMALLER?

Reports were secured from twelve canning companies showing the number of shipments for various products for a series of years and showing also the number of cases of each of the given commodities shipped in each of the years. From one company was also obtained the size of each order received and the number and size of shipments made in filling each order, for the 21 years 1907-1927. We shall first consider shipments of canned corn.

AVERAGE SIZE OF SHIPMENTS OF CANNED CORN, 1924-1927  
(Six companies combined)



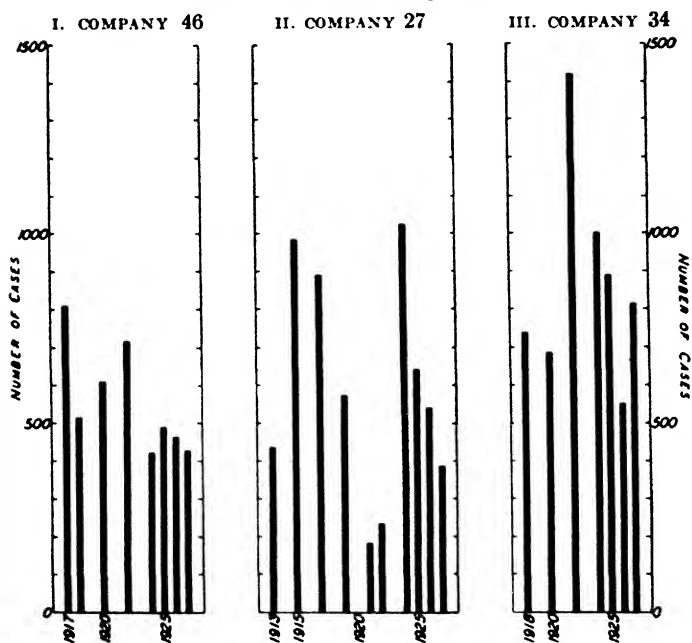
*A combination of the reports of six corn-canning companies for the period 1924-1927 shows a marked decline in the average size of shipments. (See chart on this page.) The average shipment was 515 cases in 1925 and 399 cases in 1927, being thus 22.5 per cent smaller in the latter year. The average size of shipment for the six companies was, however, lower by 54 cases in 1924 than it was in 1925. The size of shipment in 1927 was thus only 13.5 per cent lower than in 1924.<sup>1</sup>*

<sup>1</sup> Data from a seventh company were added to that of the six for the period 1925-1927. It effected no significant change in the average.

From certain of the companies just discussed records were obtained which run well back into the pre-war period. Because of possible cancellations of significant differences if they are combined, these records are pre-

#### AVERAGE SIZE OF SHIPMENTS OF CANNED CORN

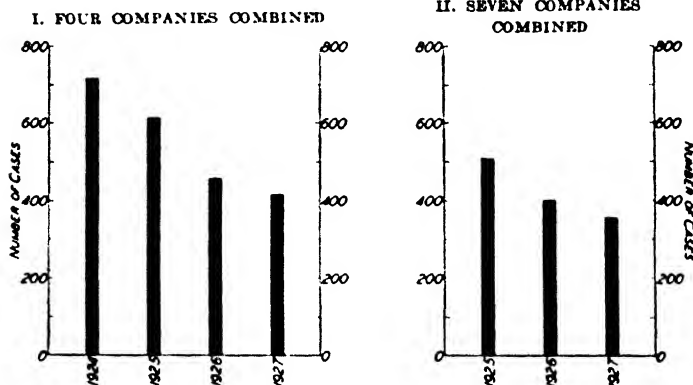
(Three individual companies)



sented individually. (See chart on this page.) Companies 46 and 27 have had in 1926 and 1927 a decline in the average size of shipment. In this the history of each is similar to that of the six companies. Company 34, on the other hand, experienced a marked increase in the average size of its shipments in 1927. Company 46,

like the combined companies, had smaller average shipments in 1924 than in 1925, but the other two companies had definitely larger shipments. The variations between 1922 and 1924 are so great that they can best be observed in the chart.<sup>2</sup> An examination of the chart for the whole period for which these records run brings out forcibly the fact that year to year fluctuations in the

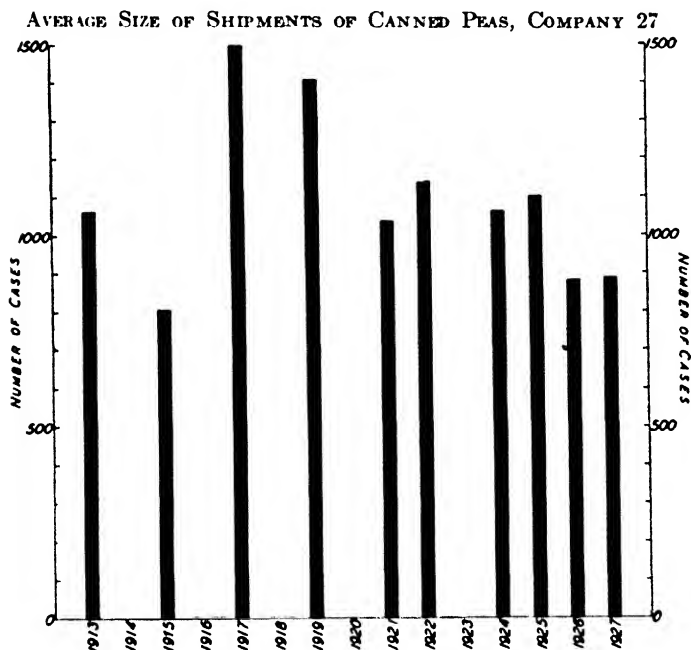
### AVERAGE SIZE OF SHIPMENTS OF CANNED PEAS



average size of shipment did not begin with 1920. Particularly worth observing are the two or three years of noticeably small and large shipments for each company. Such observations will lead to the conclusion that there has been a considerable variation in the size of shipments

<sup>2</sup> Company 27 was the only one for which data were obtained for 1921. This company shows, for that year, a smaller average size of shipment than for any year since that time. While this company's pack was small in 1921, it seems doubtful whether the small size of its average shipment is to be accounted for on that basis, for although its pack was three times as great in 1922 the average size of shipment gained only slightly.

from year to year among different concerns, and will yield some evidence, at least, that a size of shipment comparable to that of 1926 and 1927 was not unknown prior to the war.

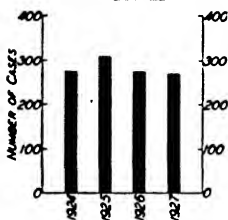


*A combination of the experience of four pea-canning companies for 1924-1927 shows a steady decrease in the average size of shipments for the period. (See chart on page 204.) The actual decline is from 713 cases in 1924 to 417 cases in 1927, a decline of 41.5 per cent. The records of seven companies—including the four spoken of above—for the years 1925-1927 show a simi-*

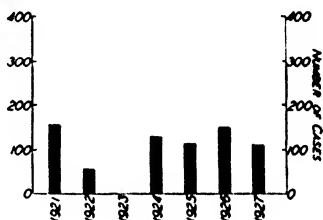
lar decline. Data concerning the pea shipments record of Company 27 were secured for certain years beginning with 1913. This company's history shows a decline since 1925 comparable to that of the companies studied in the combination, except that shipments in 1927 averaged approximately the same as in 1926. (See chart on page 205.) Nor does this company's shipments show any great variation, excepting for the drop in 1926 and 1927, since the year 1920. Average shipments were unusually

#### AVERAGE SIZE OF SHIPMENTS OF CANNED TOMATOES

I. THREE COMPANIES  
COMBINED



II. COMPANY 10



large in 1917 and 1919, while 1913 and 1915 may be compared with the years since 1920. Worth noting is the fact that in 1915 the average size of shipment was lower than in any other year of the series. Although the pre-war years are few, this seems to be further evidence that shipments of canned foods did not average higher in pre-war years than they have since 1922.

*A combination of the experiences of three tomato-canning companies for the years 1924-1927 shows that the average size of shipments increased somewhat in 1925 and declined in 1926 and 1927. (See charts on pages 206 and 215.) The chief decline was from*

1925 to 1926. The total decline from 1925 to 1927 was from 312 cases to 269 cases—a drop of nearly 14 per cent.

The shipment histories of Company 10 and Company 35 are worth study. Company 10 shows, except for a sharp decline in 1922, no serious change in the average number of cases per shipment. The average shipment was small through the period, the highest average being 153 cases.<sup>3</sup>

The history of Company 35 shows clearly certain facts:

1. There was a period from 1907 to 1909 when the average size of shipment was low, in the sense that it is comparable to the period since 1922.<sup>4</sup>

2. The size of shipment in 1926 and 1927 shows an average lower than the average for the three years prior to 1910.

3. From 1909 through 1919 there was a definite upward trend in the average size of shipments.<sup>5</sup>

4. Beginning with a sharp drop in 1920, there has been an almost continuous decline of the average size of shipment since 1919.

5. The period as a whole shows first a rise and then a decline in the average size of shipment, with the last

<sup>3</sup>This company's annual pack averages around ten thousand cases of tomatoes.

<sup>4</sup>This gives support to the idea suggested earlier by limited data that a similar low shipment existed for corn and peas.

<sup>5</sup>The trend was not continuous, there being several years showing declines, 1917 being a rather extreme case. There is some reason to believe that government purchases were not included in the 1917 data.

few years of the period showing an average size not greatly different from the first few years.

It is possible to set out this company's experience in more detail than can be shown by the average size of shipments. It was possible, for example, to study the changes in the number of such small shipments as those for less than 25 cases. There were also other groupings made which were quite different from the groupings of the sizes of orders made in Chapter VIII. The eight groupings of shipments were as follows:

Less than 25 cases
25 to 50 cases
50 to 100 cases
100 to 200 cases
200 to 300 cases
300 to 500 cases
500 to 1,300 cases
1,300 cases or over

From a study of the data, it became quite clear that when this company made a shipment of from 500 to 1,300 cases, it was almost invariably a carload lot. This accounts for the group including this wide range of shipments. This company during the whole period considered had only two shipments of more than 5,000 cases and only two for exactly 5,000 cases.\* The group 1,300 cases or over includes, therefore, with the exceptions noted, shipments from 1,300 to 5,000 cases.

The percentage of the number of shipments which fell into each of these classes and the proportion of volume represented by each class of shipments for each year of the series is shown in the table on pages 210-211.

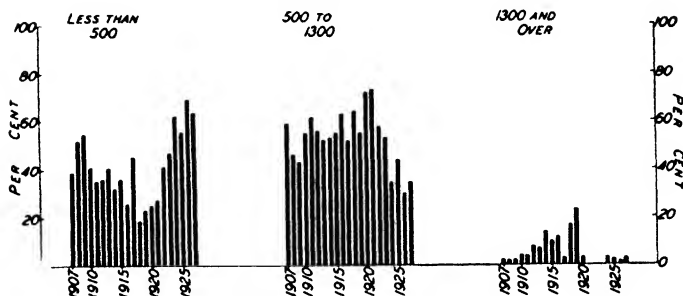
\* There was one shipment in 1909 for 6,000 cases; one in 1908 for 7,000. There were 5,000 case shipments in 1908 and in 1914.

Perhaps the most noticeable fact shown by the table is the decline in the percentage of shipments of less

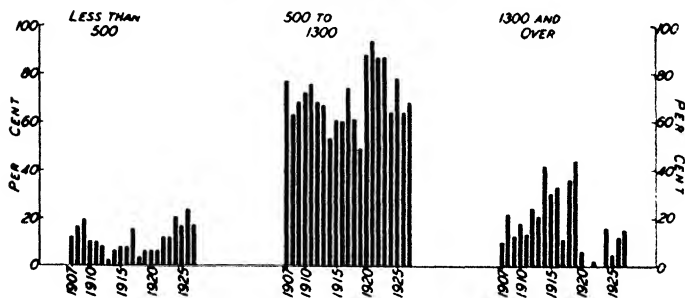
### SIZES OF TOMATO SHIPMENTS, COMPANY 35, 1907-1927

(Number of shipments and volume of business represented by each size group—in number of cases—as percentages of respective yearly totals)

#### I. NUMBER OF ORDERS



#### II. VOLUME OF BUSINESS



than 25 cases in the period 1907-1919 and the increase in the period 1920-1927. The percentage of shipments in the group 25 to 50 cases behaves in a very similar fashion.



In the chart on page 209 the same data put into three classes are shown graphically.

*The proportion of shipments of Company 35 which were in lots of less than 500 cases has been increasing rapidly since 1918. On the other hand the proportion of shipments in the 500 to 1,300-case group (carload group) has been declining markedly since 1921. In*

#### SIZES OF SHIPMENTS OF CANNED TOMATOES, COMPANY 35

(Number of shipments and volume of business represented by each size group each year, as percentages of respective yearly totals)

##### I. Number of Shipments

Year	Less than 25 Cases	25 to 50 Cases	50 to 100 Cases	100 to 200 Cases	200 to 300 Cases	300 to 500 Cases	500 to 1,300 Cases	1,300 Cases or Over
1907....	5.7	6.3	3.2	8.9	5.7	8.9	59.4	1.9
1908....	5.2	10.3	3.7	15.4	11.7	5.9	46.3	1.5
1909....	5.0	8.9	6.7	15.6	13.4	5.6	43.1	1.7
1910....	4.0	5.4	5.0	15.4	7.4	4.0	54.8	4.0
1911....	2.9	4.0	6.2	7.3	9.4	5.5	60.7	4.0
1912....	6.9	3.8	5.4	7.7	6.2	6.2	56.1	7.7
1913....	1.9	3.8	5.8	9.6	13.9	5.8	52.0	7.2
1914....	2.5	5.1	8.6	8.6	2.5	5.1	53.4	14.2
1915....	1.5	4.4	7.3	12.4	2.9	7.3	54.7	9.5
1916....	1.1	2.9	1.7	8.0	4.6	8.0	62.8	11.5
1917....	—	—	1.7	26.7	10.0	6.7	51.6	3.3
1918....	0.8	2.5	1.7	4.9	3.3	4.9	64.5	17.4
1919....	—	—	—	—	12.9	9.7	54.8	22.6
1920....	2.8	2.8	—	13.9	—	5.6	72.1	2.8
1921....	4.1	—	5.2	10.3	4.1	3.1	73.2	—
1922....	2.9	3.4	6.3	13.0	8.8	6.7	58.5	0.4
1923....	3.6	3.6	15.0	13.6	5.0	6.4	52.8	—
1924....	4.4	8.8	12.1	18.7	11.0	6.6	35.1	3.3
1925....	6.3	4.7	10.9	16.4	7.8	8.6	43.7	1.6
1926....	5.3	17.4	9.9	15.1	12.1	9.1	29.6	1.5
1927....	4.9	14.0	14.0	16.1	7.7	6.3	34.2	2.8

## II. Volume of Business

Year	Less than 25 Cases	25 to 50 Cases	50 to 100 Cases	100 to 200 Cases	200 to 300 Cases	300 to 500 Cases	500 to 1,300 Cases	1,300 Cases or Over
1907....	0.1	0.4	0.3	2.4	2.8	6.5	77.3	10.2
1908....	0.1	0.7	0.5	3.6	5.9	5.1	62.6	21.5
1909....	0.1	0.6	0.8	4.1	7.2	5.9	68.1	13.2
1910....	0.1	0.3	0.5	3.2	2.9	2.5	72.1	18.4
1911....	0.1	0.2	0.7	1.6	3.8	3.4	76.1	14.1
1912....	0.2	0.2	0.5	1.6	2.4	3.1	68.0	24.0
1913....	0.1	0.2	0.6	2.0	5.5	3.9	66.9	20.8
1914....	0.1	0.2	0.6	1.5	0.8	2.6	52.7	41.5
1915....	•	0.2	0.6	2.3	1.0	4.4	61.1	30.4
1916....	•	0.1	0.1	1.3	1.2	3.9	60.2	33.2
1917....	—	—	0.2	6.4	4.1	4.0	74.1	11.2
1918....	•	0.1	0.1	0.6	0.7	1.6	60.6	36.3
1919....	—	—	—	—	2.4	3.5	48.7	45.4
1920....	0.1	0.1	—	2.6	—	3.1	88.2	5.9
1921....	0.1	—	0.5	1.8	1.6	2.0	94.0	—
1922....	0.1	0.2	0.6	2.9	3.4	4.3	87.0	1.5
1923....	0.1	0.2	1.8	3.1	2.2	4.6	88.0	—
1924....	0.1	0.7	1.8	5.4	5.9	6.0	63.9	16.2
1925....	0.2	0.3	1.3	4.3	3.9	6.9	78.4	4.7
1926....	0.2	1.3	1.6	4.7	7.4	8.7	64.2	11.9
1927....	0.1	0.9	2.1	4.4	4.3	5.6	67.7	14.9

• The volume of shipments of this size was less than .05 per cent. of the total for the year.

1927 these shipments were less than one-half as frequent, relatively, as in 1920 or 1921. The proportion of the volume going in this class of shipments has also been declining since 1921 but by no means so rapidly as the proportion of the number of such shipments. The average proportion of volume so shipped in the period 1925-1927 is higher than the average for 1914-1919. Since 1920 this company has made comparatively few shipments of 1,300 cases or more. The percentage of

its volume taken in such shipments is also much lower than for the earlier years of the period, but has been much larger since 1923 than for the period 1920-1923.

From 1909 through 1916 there was a definite downward trend in the proportion of shipments which were less than 500 cases and a less marked downward trend in the volume accounted for by such shipments. It appears that this decline may be explained by the increasing percentage of shipments which were going out in lots of 1,300 cases or more. The proportion of the company's volume which has gone out in shipments of 1,300 cases or over has also been tending upward during the same period.

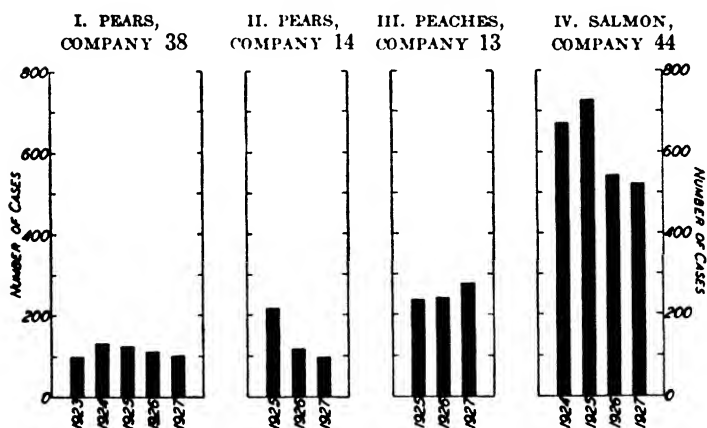
One significant effect of the increasing importance during recent years of less than 500-case shipments as compared with those of 500 cases or over is the resulting increase in marketing costs. Office costs for recording, billing, and collecting and to some degree costs for packing, loading, and trucking are about the same for each shipment whether it is large or small.<sup>1</sup> Therefore a decrease in the size of shipments causes the cost per case of these services to increase. Even more important, however, is the increase in freight charges. Assuming that Company 35 shipped 100,000 cases in each year, the freight, as the result of an increased proportion of less than 500-case (less than carload) shipments, was approximately \$1,800 more in 1926 than in 1918.<sup>2</sup>

<sup>1</sup> See discussion of costs on pp. 384-390.

<sup>2</sup> These calculations are based on the compilations of canners' reports on costs tabulated on pp. 386-387.

*Limited data secured from fruit and salmon companies give further evidence as to changes in the size of shipments. (See chart on this page.)* The experience of two pear-canning companies seems to show a steady decline in average size of shipment from 1924 through 1927. On the other hand, the experience of one peach-

AVERAGE SIZE OF SHIPMENTS OF CANNED FRUIT AND SALMON  
(Four individual companies)



canning company shows the same average size of shipment in 1926 as in 1925 and a slight rise in 1927. It is noticeable that all of these three fruit companies show a very small average size of shipment.

One salmon-canning company shows a large average size of shipment in 1924 and a still larger average in 1925. Averages for 1926 and 1927 are considerably smaller, with 1927 slightly smaller than 1926.

## II. SIZE OF SHIPMENTS COMPARED WITH SIZE OF ORDERS

Now that the evidence on changes in size of shipments has been reviewed and changes in the size of orders have had discussion (Chapters VIII-IX), it is pertinent to compare the two. The most important piece of evidence secured on this point was the size of every order received and every shipment made by Company 35 for the 21-year period 1907-1927.

*Has the number of shipments per order changed? If so, can an explanation be given?* A general impression of the relationship of the size of orders to the size of shipments can be gained from the part of the chart on page 215 which shows for each year the average size of each. But a more accurate picture is obtained in the first part of the same chart, which shows the actual number of shipments per order for the period.\*

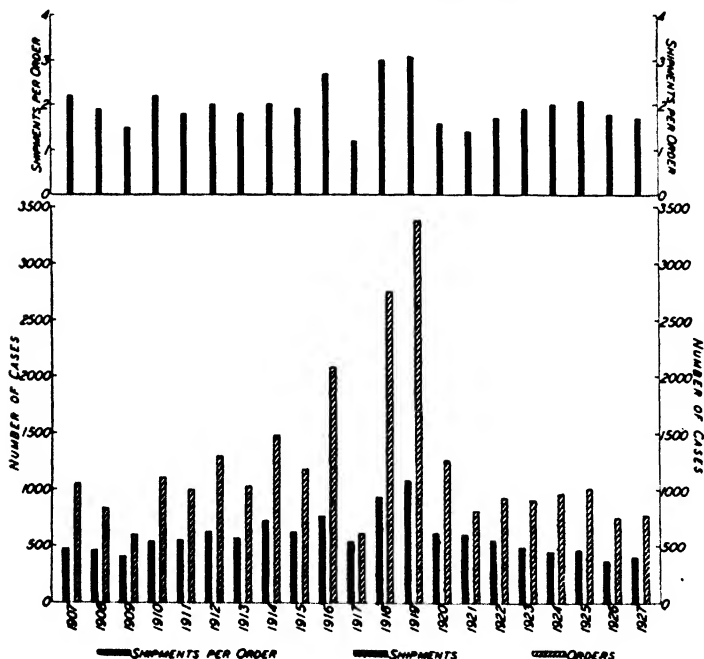
Shipments per order declined from 1907 to 1909, inclusive. The decline results from an increasing number of orders accompanied by an increasing number of shipments, the latter, however, increasing less rapidly.

The number of shipments per order remained fairly uniform from 1910 to 1915, inclusive. Shipments at the beginning of this period are high in number and tend downward with much variation. The number of orders does the same. But the two maintain a practically identical relative variation which results in the uniformity of the ratio. Shipments per order are much higher in 1916, 1918, and 1919 than in any other years.

\*For each year the number of shipments was divided by the number of orders.

In 1916 the number of shipments *advanced* considerably over the number of 1915, while orders *declined* in number.<sup>10</sup> The same is true for 1918 as compared with 1917. In 1919 both shipments and orders declined in number,

SIZE OF SHIPMENTS COMPARED WITH SIZE OF ORDERS, CANNED TOMATOES, COMPANY 35, 1907-1927



but the decline in orders is greater, so that the number of shipments per order is still higher than in 1918.

<sup>10</sup> It is worth while to note the difference between this and the period 1907 to 1909, when a change took place, although the number of shipments and the number of orders were both moving in the same direction.

One might conclude from observing the large number of shipments per order in 1916, 1918, and 1919 that shipments were small in these years. This, however, is exactly contrary to the facts. The average size of shipments for each of these three years is higher than in any other year. This paradoxical situation is brought about by the fact that orders in these three years are extremely large, averaging 3,328 cases in 1919. In one of these years this company received an order for 40,000 cases, all of which went out in shipments of a carload or more. In all three of these years there were numerous large orders.

The number of shipments per order was lower in 1917 than in any other year of the series. This was a real year of hand-to-mouth buying for this company in certain senses. It received very small orders, the largest being for 2,000 cases. A great many were for less than a carload, and in more instances than in any other year the order went in a single shipment. Three shipments was the largest number used for any order. In the period 1921 to 1925, inclusive, the number of shipments per order rose steadily. It was somewhat smaller in 1926 and 1927. In the first two years of the period, both shipments and orders were increasing in number, but shipments were increasing more rapidly than orders. The next two years both orders and shipments were declining, but shipments less rapidly. Since that time both have been advancing, shipments more rapidly in 1925, orders more rapidly in 1926, and orders and shipments uniformly in 1927.

*There are three striking general conclusions to be drawn.*

1. Shipments per order have increased for most of the period since 1920.

2. An increase in shipments per order does not necessarily indicate that the size of shipments is growing smaller; shipments per order during the period have increased and decreased at different times *for very different reasons*.

3. The number of shipments per order, since 1920, is similar to that of pre-war years; shipments per order for the nine years 1907-1915 averaged slightly higher than for the eight years since 1920.<sup>u</sup>

<sup>u</sup>In the years 1907 to 1915 there was an average of 1.93 shipments per order; from 1920 to 1927 an average of 1.76 shipments per order.





**PART III**  
**EFFECTS AND CONCOMITANTS**



## **A. STOCK BURDEN**



## CHAPTER XI

### THE CONCEPT

As was suggested in Chapter II, one may imagine a system of specialized production in which every engineering ideal has been realized to the last degree. One may even dream of production so organized that no business concern or other economic unit would be obliged to carry stocks of raw materials or of finished goods. Fancy may picture supplies of every sort flowing into factories just as machines are ready to use them; goods flowing out to freight cars and trucks just pulling up to shipping platforms; merchandise arriving at dealers' shelves just when space was made available by housewives carrying off goods to supply their husbands and children, who were just ready to consume them upon arrival. Under such conditions the burden of expense and risk borne by society because of the stocks necessary to the production process would be at a minimum. But such a picture is fanciful indeed when we consider the problem of production, even in terms of our best available technique and knowledge of organization. The necessity for seasonal production of many products, the economy attendant upon shipments of certain sizes,<sup>1</sup> the preparation for possible breakdowns in transporta-

<sup>1</sup> See discussion of costs for various sizes of orders on pp. 373-396.

tion are only a few of the causes of inventory, quite aside from speculation for price advance.

*Yet inventories are at best a necessary evil.* As every business man knows, the necessity for stocks is unfortunate. Inventories represent "money tied up"; they represent danger of loss through spoilage, fire, and obsolescence; they represent risk through price change. There is always the urge, on the one hand, to keep at a minimum such costs, losses, and risks, and, on the other, to have in stock all needed styles, types, and varieties and to be protected against the limitations of supplying agencies.

*The effort to keep down inventories is in the center of any picture of hand-to-mouth buying.* Some persons, indeed, define hand-to-mouth buying as little else than buyers' efforts to secure lower inventories and more turnover. "It is considered [to be] the purchase of stocks of merchandise . . . so as to encourage more rapid turnover and reduce inventories."<sup>3</sup> Also, "More turnover was the expression used in 1912 for what we happen to call now hand-to-mouth buying."<sup>4</sup>

More common, however, has been the statement that inventories are not so much lessened as that their burden has been shifted. "The burden has simply been shifted from one pair of shoulders to another."<sup>4</sup> This supposed shifting, it is widely believed, has enabled merchants to carry a smaller part of the total volume of goods going

<sup>3</sup> *Industrial Management*, June, 1927, Vol. 73, pp. 344-7.

<sup>4</sup> Sammons, Wheeler, in "Hand-to-Mouth Buying" *Metropolitan Life Insurance Company Bulletin*, p. 98.

<sup>4</sup> Masters, Chester, *ibid.*

through the process of trade, forcing those less far along the line of specialized producers to carry the inventory. We hear, for example: "Distribution costs for the manufacturer are increased because they are forced to carry larger stocks. The burden of carrying stocks is shifted from the distributor to the manufacturers."<sup>6</sup> Again. "The system of purchasing in small lots has forced the manufacturer into the distribution business."<sup>7</sup>

*But inventories may be considered from a social point of view.* So considered, two matters are important. First, it is important that such inventories as must be held should be held at the points of greatest economy. So long as goods are available as needed, it is not of great social significance whether stocks are carried by producers of raw materials, manufacturers, or merchants, provided the carrying is done at the place where it can be done most cheaply. The calculations of business men in the competitive struggle are constantly at work to place or keep stocks at points of lowest cost. It is also of great consequence from a social point of view that total stocks in any or all trades are higher, or lower. If, as a society, we can do our total business on a relatively smaller social inventory, we have gained; if with the same volume of trade our total inventories have increased, there is a loss. Total inventories constitute a burden of social investment and risk which it is desirable to keep as low as possible. In a study of stocks, there-

<sup>6</sup>Plumb, Fayette R., *Printers Ink Monthly*, January, 1927, p. 21.

<sup>7</sup>Carroll, Walter C., in "Hand-to-Mouth Buying" *Metropolitan Life Insurance Company Bulletin*, p. 39.



fore, it is worth while not only to ask whether the stocks of manufacturers and other specialists early in the line of production have increased and whether the stocks of merchants have decreased, but to give thought also to the question whether, under current buying methods, the total social inventories are expanding or contracting.

*Variations in the volume of stocks are an inadequate measure.* The average stock or inventory of a manufacturer, packer, mining company, or other producer may become greater or less from year to year, but a comparison of such variations tells very little. An increase in sales may have required an increase in inventory; a decrease of sales, a diminution of stocks carried. To determine whether stocks are of more serious concern to a business at one time than at another, they must be compared with the volume of business done. Such a comparison gives us a concept which we may speak of as the *stock burden*. The average of the stocks on hand at the end of each month of a calendar year divided by the average of the sales for the twelve months of the same year would be one simple way of determining the stock burden for a year. The peculiar conditions of a business may make other comparisons of stocks and volume of business more desirable ways of determining stock burden.<sup>1</sup>

In the discussion of inventories in this study, it is the *stock burden* which is considered. In many instances figures on both stocks and shipments could be secured. Dividing stocks by shipments gives a satisfactory

<sup>1</sup> Or limitations of data may make them necessary.

measure of the stock burden, and where used this ratio is spoken of as the stock-shipments ratio.\* In other cases stock burden has been determined by obtaining a ratio of stocks to apparent consumption, or stocks to orders to be shipped out of warehouses, or by using other devices which will be indicated as used. Stock burden may also be conveniently measured by measuring stock turnover. Indeed, in measuring the stock burden of merchants, this is the method most easily employed and most commonly used. In the discussion of the stock burden of merchants in Chapter XIV turnover has been used as the measure.

*An examination of our total social stock burden would require a study not only of goods for sale but also of supplies for manufacture and consumption. Producers, other than merchants, have two types of stock burden. On the one hand, they have a stock of finished goods for shipment and, on the other, a supply of raw materials.'*

\*In instances in the study where the monthly figures for both stocks and shipments were obtained, it would have been possible to divide the average stocks of the calendar year by the average shipments of the same year. It is assumed, however, that to some degree managers attempt to keep inventories of finished goods in line with prospective sales. Therefore, in certain cases the shipments-year was computed as beginning somewhat later than the stocks-year. In a number of instances the average of stocks on hand at the ends of the months of each calendar year were divided by the average of monthly shipments for twelve consecutive months beginning with July of the same year. Probably this, in some instances, allows too long a period of preparation for sales. In others, it is perhaps too short. It is believed to be, however, as satisfactory as any single adjustment that might have been used. Where the phrase "stock-shipments ratio" is used, it will refer to a ratio so constructed, unless otherwise indicated.

\*The farmer's inventory of raw materials, especially if one considers his growing crops and immature livestock, is a particularly interesting one.

Manufacturers often refer to the second as "stores." The merchant, in his packing materials and the like, has a small "materials stock," but, for the most part, what the merchant buys he has for sale.

We are, then, ready to ask:

1. Is there evidence that the burden of stocks has been materially shifted from one type of producer to another?

2. Has the burden borne by society in the form of stocks of materials and goods in the process of production been declining or increasing under modern conditions of trade?

To throw light on these questions, a wide range of material has been studied, which, for purposes of analysis, has been classified as follow:

Stock burden of goods for sale by others than merchants;  
Stock burden of raw materials, chiefly of manufacturers;  
Stock burden of goods for sale by merchants.

## CHAPTER XII

### STOCK BURDEN OF GOODS FOR SALE BY OTHERS THAN MERCHANTS

The stock burden of goods ready for sale, at mines, at refineries, on farms, in warehouses, and at manufacturing plants is represented in the samples discussed in this chapter.<sup>1</sup>

Manufacturing has furnished a plurality of the cases. Certain of the samples have been classified into six general industry groups: non-ferrous metals; iron and steel products; textiles; food products; building materials; and agricultural products. Samples which were not classified are: boots and shoes, gasoline, and pneumatic tires.

#### I. SAMPLES AMONG THE NON-FERROUS METALS

The non-ferrous metals are represented by zinc ore (Joplin District), refined copper, and tin.

*The stock burden of non-ferrous metals, as measured by the stock-shipments ratios of three samples, has been*

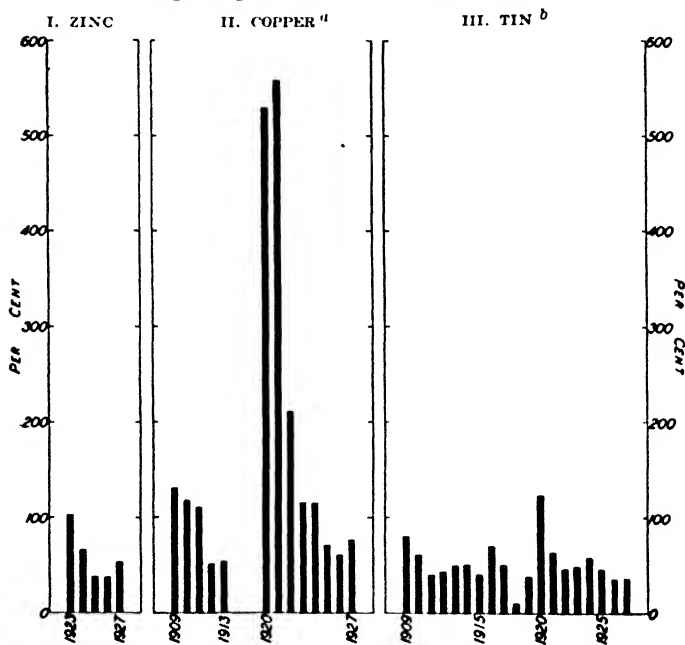
<sup>1</sup> Except where otherwise indicated, the stock burden has been computed by the method described in footnote 8 on p. 227. That is, the average of the stocks on hand at the ends of the months of each calendar year was divided by the average of monthly shipments for twelve consecutive months beginning with July of the same year.

Sources of stocks and shipments data which have been used to compute stock burden for each industry will be indicated where the industry is discussed. Except when otherwise specified these data are published in the *Survey of Current Business*.

*decreasing in recent years.* (See chart on this page.)  
Taking zinc ore as a first example, there is found a de-

#### STOCK BURDEN FOR NON-FERROUS METALS

(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)



<sup>a</sup> Concerning copper data see footnote 3, page 231.

<sup>b</sup> See footnote 4, page 231.

cline from 103 in 1923 to 37 in 1925.<sup>3</sup> The same percentage was maintained in 1926. In 1927 it was 54.

<sup>3</sup> Stocks are those at Joplin District mines, which produce about 65 per cent of the ore mined in the U. S. Shipments are recorded as loaded at mines by buyers for shipment to smelters. Data are from the *Joplin Globe*.

In other terms, this means that in 1925 and 1926 stocks at mines at the end of the month were sufficient to supply about ten days' shipments. In 1923 they were high enough to supply a month's shipments. Current buying practices in zinc have not caused higher inventories at the mines.

The stock-shipments ratio of refined copper at refineries has been declining rapidly since 1921.<sup>3</sup> The ratio is somewhat higher in 1927 than in 1925 and 1926, but much lower than in any earlier year. In 1920 and 1921 there averaged enough stocks on hand to supply about five and a half months' shipments; while in 1926 stocks were not sufficient for three weeks' shipments. The earlier series (United States only, and not strictly comparable with the latter one) shows a steady decline in stock-shipments ratio from 1909 to 1912, with both 1912 and 1913 less than half as high as any earlier year. The similarity of this movement to that of the stock burden of tin for the years 1909 to 1913 is worth noting.

The stock burden of tin has been declining steadily since 1924.<sup>4</sup> With the exception of the year 1918, it was lower in 1927 than in any year of the nineteen from 1909

<sup>3</sup> Data for 1909-1914 were compiled by the American Copper Producers' Association and published in the "Metals and Machinery" section, *Record Book of Business Statistics*. They represent domestic conditions only. Data for 1920-1928 were furnished by the American Bureau of Metal Statistics and represent stocks on hand at, and total shipments from, twelve refineries in North and South America.

<sup>4</sup> Practically no tin is produced in the U. S. The stock burden figure, therefore, is determined by a ratio of stocks at port warehouses in New York to deliveries from those warehouses; these deliveries may be thought of as shipments. Stock burden is therefore again, in effect, a stock-shipments ratio. These deliveries indicate approximate consumption. Data are from the *New York Metal Exchange*.

to 1927. The stock burden reached 122 in 1920, far the highest year of the series, with the year 1909 next highest. Current practices in this trade show, therefore a decreasing rather than an increasing stock burden. Stocks at port warehouses in New York at the end of the month in 1927 averaged about nine days' consumption requirements.

## II. SAMPLES FROM THE IRON AND STEEL INDUSTRY

The stock burden of merchant pig iron, steel sheets, and steel barrels for the industry generally and the stock burden of a leading steel company are the samples considered from the iron and steel trade.

*The samples from the iron and steel trade show no justification for positive conclusions regarding the trend of stock burden.* (See chart on page 233.) The movements are conflicting. Available data for merchant pig iron, making possible comparisons for the years 1919 to 1925, show mixed trends.\* The stock-shipments ratio is lower in 1925, the last year of the series, than in the preceding year, but at the same time it is higher than in any other year excepting 1921 and 1924. The lowest burden was in 1922, with 1919 and 1920 almost as low. While there is no trend that is definitely indicated, the average for the last three years of the series is higher

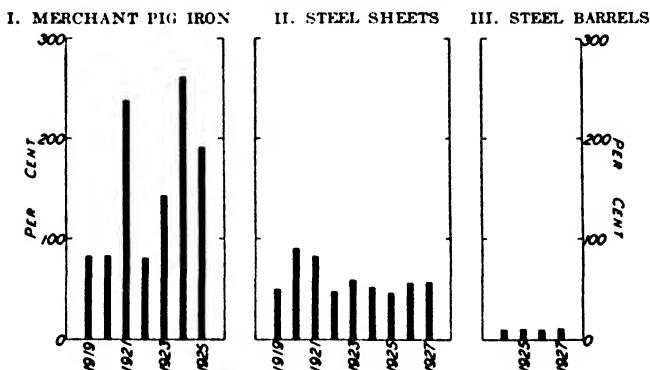
\* Data from the American Pig Iron Association as reported in the "Metals and Machinery" section, *Record Book of Business Statistics*, representing about 90 per cent of production in strictly merchant furnaces; that is, those making iron for sale instead of for further use in their own plants. Stocks are those at merchant furnaces.

than that for the first four. The stocks carried have varied from the requirements of less than one to those of more than two and a half months' shipments.

The stock-shipments ratio of steel sheets has varied considerably since 1921.\* In 1920 and in 1921 the burden was high, amounting to 89 in 1920, and 83 in 1921.

#### STOCK BURDEN IN THE IRON AND STEEL INDUSTRY

(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)



For every year since it has been very much lower, being highest in 1923. In 1926 and 1927 it was higher than in either of the two preceding years, but not so high as in 1923. The stocks carried average somewhat more than the amount required for a half-month's shipments.

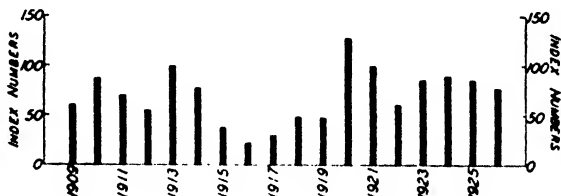
\* Data, compiled by the National Association of Flat Rolled Steel Manufacturers, represent almost all of the independent sheet steel manufacturers. Stocks, both sold and unsold, and shipments of black, blue, galvanized, and full finished steel sheets were used for calculating the stock burden.



The stock-shipments ratio of steel barrels declined from 1924 through 1926, but was higher in 1927.<sup>1</sup> The stocks of steel barrels compared to other products considered (and also to other products which will be considered) are extremely low. Stocks on hand at the end of the month average slightly less than 10 per cent of the average month's sales. This means that the inventories on hand were less than sufficient for three days' shipments.

STOCK BURDEN INDEX FOR A LARGE STEEL MANUFACTURING COMPANY, 1909-1926

(Stock burden in 1913 = 100; see footnote 8 on this page)



The stock burden of a leading steel company in the last year for which data are available was far below the peak reached in 1920.<sup>2</sup> (See chart on this page.) Yet the average burden for the years since 1920 is not low when compared with the earlier years. During the period

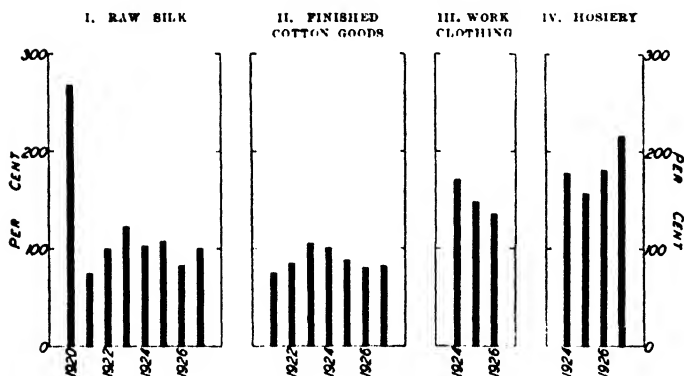
<sup>1</sup> Data, compiled by the U. S. Department of Commerce, Bureau of the Census, cover almost the entire industry.

<sup>2</sup> Inventories of finished products (in dollars) as of December 31, for each year were adjusted by using Bureau of Labor Statistics Index of Iron and Steel Prices (averaged for the same December and the following January). Adjusted inventories, as of December 31, were divided by the average monthly shipments (both domestic and export, in tons) of rolled and finished steel products for the ensuing year. The ratio thus obtained is expressed as relative to 1913 = 100. Data were taken from *Poor's* and *Moody's Manuals*.

1909-1914 this company carried about the same stock burden as it has since 1921. A very low stock burden was maintained from 1915 through 1919. It is worth noting that while the trend since 1920 has not been regular the last two years have seen a decreasing stock burden.

### STOCK BURDEN IN THE TEXTILE INDUSTRY

(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)



### III. SAMPLES FROM THE TEXTILE INDUSTRY

Samples from the textile industry include raw silk, finished cotton goods, work clothing, and hosiery.

*The samples from the textile industry show the stock burden to be decreasing in some industries and increasing in others. (See chart on this page.) The stock burden of raw silk shows considerable variation but no*

significant trend between the years 1921 and 1927.\* In 1920 the burden was 267, over twice as great as in 1923, which is the highest after 1920. One of the curious features of the series is the fact that the burden was lower in 1921 than in any other year of the series and that 1921 and 1922 show almost the same proportion of stocks to deliveries as is shown in 1926 and 1927, respectively. In 1920 there were enough stocks on hand to supply over two and a half months' shipments, while in 1927 there were only enough to supply about one month's deliveries.

The stock-shipments ratio for cotton goods in the hands of finishers has been declining since 1923." It was lower in 1921 than for any other of the seven years studied. If hand-to-mouth buying has been affecting the stocks of cotton finishers during the past four years, it has been to lower them. In 1927 stocks on hand at the end of a month averaged about three weeks' shipments; in 1923 they averaged about a month's shipments.

The stock-shipments ratio of manufacturers of work clothing declined from 1924 through 1926." The series on which this is based has been discontinued, making

\* Raw silk, like tin, is for the United States an imported product. To determine the stock burden of raw silk, the calendar year average of stocks on hand at the end of the month at the port warehouses in New York City have been divided by the average monthly deliveries from these warehouses during the year beginning in July. Both figures are compiled by the Silk Association of America.

" Data, compiled by the National Association of Finishers of Cotton Fabrics, are estimated to cover about half of the industry outside of regular textile mills. Finished stocks on hand are used for calculating stock burden.

" Data are compiled by the U. S. Department of Commerce, Bureau of the Census. Stocks are of finished goods only.

it impossible to compute the ratio for 1927. The inventories of work clothing manufacturers are noticeably higher in proportion to shipments than are those of other textiles which we have considered. In 1924, for example, these manufacturers had on the average enough goods on hand at the end of the month to supply nearly seven weeks' shipments.

The stock-shipments ratio of hosiery manufacturers has been increasing.<sup>12</sup> While lower in 1925 than in 1924, it advanced noticeably in 1926 and 1927. In 1927 hosiery manufacturers had on hand at the end of the month, on the average, enough stocks to supply more than two months' shipments. It is quite probable that this increasing ratio is to be accounted for by the energetic efforts of many hosiery manufacturers to control the stocks and purchases of retailers. This in turn has been brought about by the increase in the number of styles, weights, and colors of hose, which has markedly changed the purchasing of dealers and the production plans of manufacturers. The methods tend in the direction of smaller and better selected stocks for dealers, with the manufacturer assuming the burden of stocks but at the same time assuming in large part the determination of what styles shall be purchased. (For further discussion of this point, see page 412.)

For hosiery as for work clothing, the stock burden for all years is high as compared with that for cotton goods or raw silk. This may be accounted for in the case of hosiery by the facts just cited. It is probable that for

<sup>12</sup> *Ibid.*

work clothing also, it is color, style, size, and other elements of variety which necessitate larger stocks than are required in handling raw materials.

#### IV. SAMPLES FROM THE FOOD INDUSTRY

Data making possible a study of stocks on hand in food industries have been obtained for canned foods, meat products, butter and cheese, and refined sugar.

##### A. Canned Foods

No data on stocks of goods in the canning industry have, in the past, been compiled by any association or government agency.<sup>12</sup> To make an estimate of the effect of current buying methods on the stock burden of canners, it was necessary to obtain information directly from the reports to a questionnaire sent to members of the National Canners Association. Some 76 reports were secured from canning companies (the number varied considerably with the product) as to their carry-over on January 1 of a series of years. Carry-over in each case was reported as a percentage of the preceding year's pack.<sup>13</sup>

<sup>12</sup> The Department of Commerce has only within recent months undertaken the collection of such data.

<sup>13</sup> In reporting, a majority of the companies considered carry-over to be goods on hand for which there were no orders. A smaller number considered carry-over to be goods in stock without regard to whether there were orders for some of them. While this makes it impossible to use the data to determine the percentage of the preceding year's pack *unsold* as of January 1, it does not annul their value as a measure of the inventories in the hands of canners at that date. Save for risk of price change, the inventory imposes

There is no reason to believe that the inventory on January 1 represents an average or a typical condition. Indeed, in so seasonal an industry no date could be expected to be typical. Cannery state, however, that in earlier years their pack was largely shipped by Christmas. A measurement of the situation as of January 1, for a series of years, therefore, gives a good basis for determining whether the inventory load of the canner is increasing. It is necessary to keep in mind, however, that for canned goods the term stock burden means, as already indicated, the stocks on hand on January 1, expressed as a percentage of the preceding year's pack."

*In every type of canned food product the stock burden of the canner has been rising sharply since 1925.* (See chart on page 240.) In the case of some products the rise has been practically continuous for a longer period of years. In other instances there has been a rise following a sharp decline.

The longest continuous rise in canned food inventories is found in the case of peas, where with only a slight recession the trend has been upward since January, 1919. In January, 1928, the carry-over, whether measured by all companies reporting or by certain se-

---

as serious a load on the canner when there are unfilled orders to which some of it may eventually be applied as it does when there are no orders. If all canners had reported carry-over as meaning goods on hand but unordered, the totals would have been somewhat less in each year.

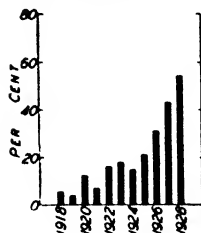
"This stock burden figure is not entirely comparable with most others appearing in this chapter, because stocks on hand at a given date are related to a year's pack (approximately same as sales) instead of average stocks being related to an average month's shipments.

lected groups of companies, stood at more than 50 per cent of the pack. This contrasts with less than 5 per cent of the pack carried over into January, 1919.

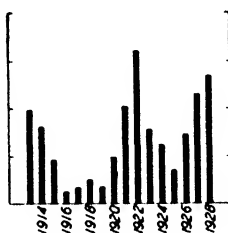
### STOCK BURDEN FOR CANNED FOODS

(Stocks on hand January 1 as a percentage of previous year's pack)

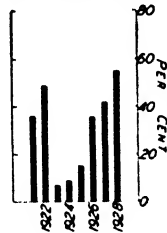
I. PEAS, ALL REPORTING COMPANIES



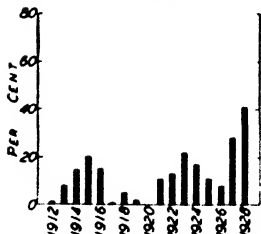
II. CORN, ALL REPORTING COMPANIES



III. TOMATOES, ALL REPORTING COMPANIES



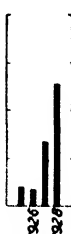
IV. FRUIT, ALL REPORTING COMPANIES



V. PEACHES, ALL REPORTING COMPANIES



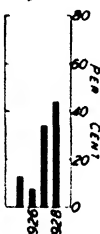
VI. PEARS, ALL REPORTING COMPANIES



VII. SALMON, COMPANY 43



VIII. SALMON, COMPANY 44



The stock burden of canned corn went up sharply from January, 1919, through January, 1922, but declined to a low point in January, 1925. As measured

by the returns from all the companies reporting, the inventory of January 1, 1928, was not quite so large in relation to the pack as on the same date in 1922. A study was made of the inventories of eight companies that reported consecutively from January, 1919, through January, 1928. The combined experience of these concerns showed a movement similar to that first described, but exhibited a much greater increase of stocks carried in the past two years. A comparatively high stock burden was not unknown in corn-canning, however, prior to the post-war period. The data show that in January, 1913, it was at a point higher than most years, exceeded, indeed, by only three years since that time.

The movement of the stock burden of tomatoes in canners' hands on the first of January has been similar to that of corn, the burden being higher in 1928 than in any other year for which data were obtained. It was also high in January, 1922. The decline following the peak of 1922 is more rapid than in the case of corn, reaching its lowest point in the following year. Since January, 1923, the trend has been steadily upward.

The companies reporting on carry-over of fruit include canners of pears, peaches, pineapples, cherries, and berries. As the number reporting for each type of fruit was somewhat limited and varied somewhat from year to year, as certain types were not represented at all in certain years, a compilation of the returns is at best a somewhat doubtful picture of stock burden of canned fruit. It is interesting to observe how, in spite of the



limitations of the data, the changes in stock burden since 1914 follow closely those already shown for stock burden of canned corn. The charted records of all companies reporting carry-over for pears and for peaches show a record almost identical with that for all fruit. The stock burden of canned pears showed the greater increase, the carry-over on January 1, 1926, being about 7 per cent of the preceding year's pack and mounting to over 50 per cent on January 1, 1928.

Only two salmon canning companies reported on carry-over. Both of these, however, were very large concerns. Both show a great increase in the percentage of the pack carried over for the past two years. The records of Company 43 whose reports begin with January 1, 1919, show, however, that in every year from January, 1920, through January, 1924, the carry-over represented a larger proportion of the pack than has been true in any other year for which a report was made. While the records of Company 44 go back only to January, 1925, its experience follows so closely the experiences of the company with a longer history that there is reason to believe that the two companies have had a similar history throughout the period.

Thus every type of food-canning industry studied shows that canners are carrying an increased percentage of the load which must be carried in each annual food pack. If canned goods alone were to be considered, the belief that merchants are compelling those from whom they buy to carry the inventories of the trade would be fully justified.

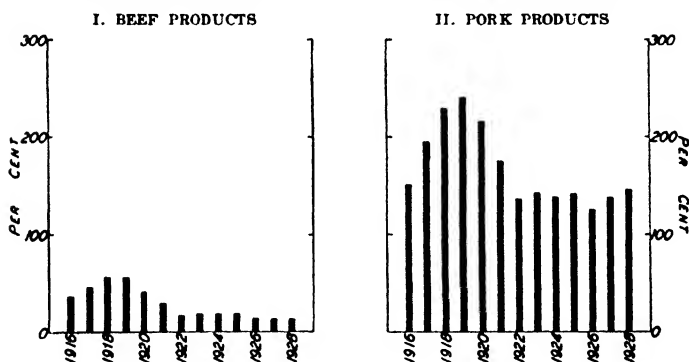
## B. Meat Products

Beef and pork furnish representative samples of the meat industry.

*The packers have been able greatly to decrease their stock burden during the past ten years.*" (See chart on this page.) The stock burden of beef has declined almost

### STOCK BURDEN FOR MEAT PRODUCTS, 1916-1928

(Monthly average for stocks as a percentage of average monthly "apparent consumption" for corresponding calendar year)



continuously since 1919. The only exception to the continuous decline was in 1923, when there was a slight advance over 1922. Since 1921 the ratio has

<sup>18</sup>The ratios for beef, pork, butter, and cheese have been computed on a calendar year basis; otherwise the method is the same as that used in preceding cases. Stocks are cold storage holdings, as reported by cold storage companies, and these have been compared to "apparent consumption" (approximately shipments). Packers usually own the cold storage holdings of meats, and manufacturers the cold storage holdings of butter and cheese. Data, compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, are published in the *Survey of Current Business* and in the U. S. Department of Agriculture Yearbooks.

continuously been much lower than in any of the six years preceding. And in 1927 it was lower than in any year of the series beginning with 1916. The evidence shows a far lighter burden for the packer under current conditions than formerly. In 1927 he carried, on the average, only inventory enough for slightly over three days' shipments as compared with inventory enough for over two weeks' shipments in 1918 and 1919.

The stock burden of pork products, like that of beef, has declined almost steadily since 1919. The year 1926 is the low for the series of 13 years covered; but in this case, as in the case of beef, the ratio has been uniformly low since 1921. The difference between the post-war years and the pre-war years is less marked than in the case of beef, however. During all the period the stock burden has been very much greater in pork products than in beef, being at the peak in 1919, when it was 240 as compared with 55 for beef products in the same year. The greater seasonality of pork slaughter possibly in large measure accounts for the greater average cold storage holdings. The ratios both for beef and pork indicate that current conditions of buying are causing smaller rather than larger inventories to be held by packers. It is noteworthy that the largest stock burden in each product was built up during the period 1916 to 1919.

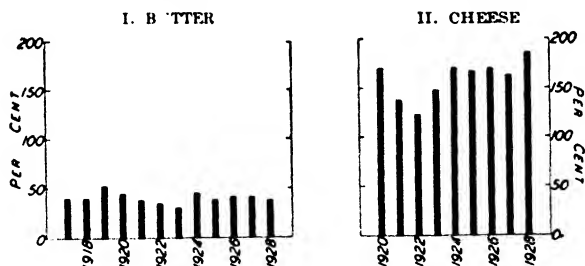
### C. Butter and Cheese

The stocks of butter and cheese held in cold storage are usually the property of manufacturers, though they may be owned by speculators, or merchants.

*Data on butter and cheese show conflicting trends.* (See chart on this page.) The stock burden of butter shows very little change over a period of twelve years. The lowest ratio for the series was in 1923. The highest of the series was 1919. Such variations as can be observed suggest no relation to buying practice. Nor are the product and the method of producing and handling it such as might be expected to show great changes in buying methods.

#### STOCK BURDEN FOR BUTTER AND CHEESE

(Monthly average for stocks as a percentage of average monthly "apparent consumption" for corresponding calendar year)



Holdings of cheese in relation to consumption have increased decidedly since 1922. The ratio behaves quite differently from the ratio for butter. The high year for the series of nine years beginning with 1920 is 1928. The ratio gives reason to believe that dealers are carrying a smaller proportion of the total trade inventory and are requiring manufacturers to hold a larger proportion than was formerly the case. It seems altogether probable that the number of varieties of cheese now

offered in the American market and the increase of packaging are important factors in accounting for the increased stock burden.

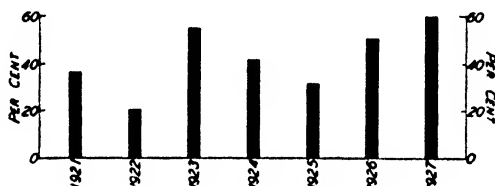
### D. Refined Sugar

Stocks of refined sugar as related to shipments may be compared from 1921 to 1927.<sup>11</sup>

*The stock-shipments ratio for refined sugar has been increasing since 1925. (See chart on this page.) It is*

#### STOCK BURDEN FOR REFINED SUGAR, 1921-1927

(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)



nearly twice as high in 1927 as in 1925 and higher in 1927 than in any other year of the series. The second highest ratio is in 1923, and the lowest is in 1922. There is evidence that buying practices of the past few years have been increasing the stock burden of refiners.

<sup>11</sup> Data are from reports of refineries in Savannah and New Orleans compiled by the Federal Reserve Bank of Atlanta.

The ratio used is again the average stocks on hand at the end of the months of the calendar year divided by the average of monthly shipments for twelve consecutive months beginning with July of the same year.

In 1927 average stocks were sufficient for over two weeks' shipments.

## V. SAMPLES FROM THE BUILDING INDUSTRY

The stock-shipments ratio has been computed for varying periods for Portland cement, yellow pine, oak flooring, common brick, face brick, and enameled ware baths. It was possible to construct the ratio for oak flooring for 16 years, beginning with 1912. Each sample includes a picture of post-war years.

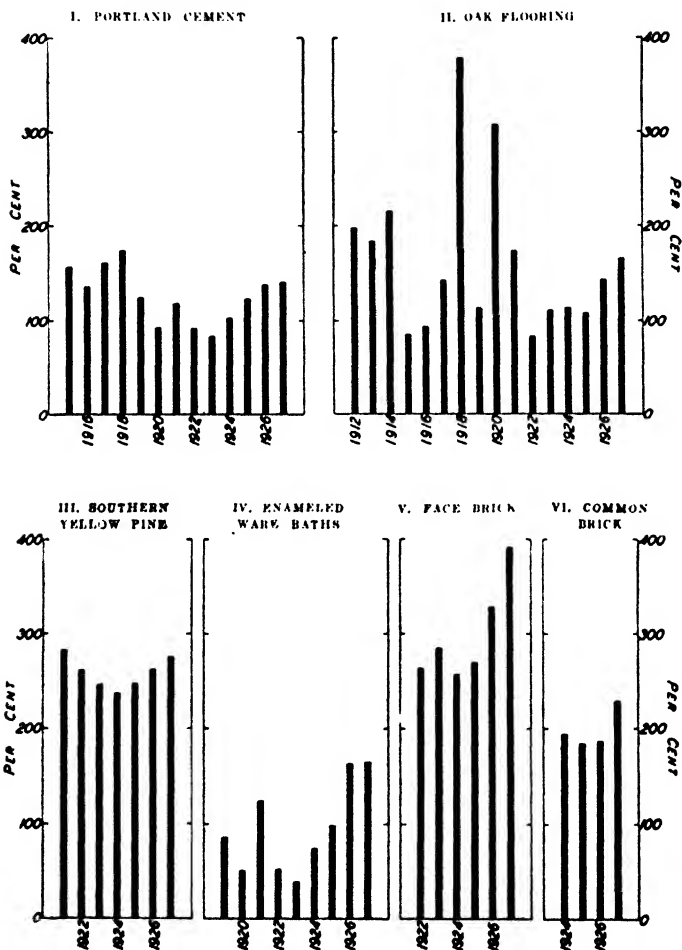
*A well defined increase in stock burden is disclosed in every sample of the building industry.* (See chart on page 248.) While the upward trend is more marked in some cases than in others and while the movement began earlier in some branches of the industry than in others, it is nevertheless general.

The stock-shipments ratio for Portland cement manufacturers has been rising since 1923.<sup>28</sup> This rise was preceded by an almost steady decline from a high of 1918. Although the ratio reaches 141 in 1927, which is the highest ratio for any post-war year, every year from 1915 to 1918, inclusive, except 1916, shows a still higher ratio. In 1918 stocks would supply about seven weeks' shipments; in 1923, about three and a half weeks; and in 1927 approximately a month and ten days. It is worth recording perhaps that there has been a trend upward in shipments of Portland cement since 1920. Stocks, however, have more than kept pace.

<sup>28</sup> Stocks and shipments of Portland cement compiled by the U. S. Department of Commerce, Bureau of Mines, represent complete reports of manufacturers.

## STOCK BURDEN IN THE BUILDING INDUSTRY

(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)



The trend of the stock-shipments ratio for oak flooring manufacturers has been upward since 1922.<sup>19</sup> In 1926 and 1927 it is particularly marked. In 1927, however, the ratio is far below the point reached in 1918 and 1920 and considerably below the level of the years 1912, 1913, and 1914. Thus, even more noticeable than in the case of Portland cement is the fact that a high stock-shipments ratio was not unknown prior to our entrance into the war. Shipments fell off in 1926 and 1927 and were somewhat more seasonal in nature than for a series of years preceding. This seasonality may account for the fact that manufacturers carried a larger proportion of stocks than in the preceding period.

There has been a steady increase in the stock-shipments ratio for southern yellow pine since 1924.<sup>20</sup> This trend was preceded by a decline following 1921, with 1921 showing a somewhat higher ratio than 1927. The stock-shipments ratio for yellow pine shows considerably less variation from year to year than does that for either of the products just discussed. Throughout the period, also, the ratio is very much higher than for either of those products, stocks on hand averaging some two and a half month's shipping requirements.

<sup>19</sup> These data, compiled by the Oak Flooring Manufacturers' Association, represent about 90 per cent of the oak flooring industry.

<sup>20</sup> Data are compiled by the Southern Pine Association and represent an estimate of the condition of the industry as a whole based on a large sample. For details, see footnote No. 1 in *Survey of Current Business*, August, 1928, p. 68.



The stock-shipments ratio of enameled ware baths increased rapidly from 1923 through 1927.<sup>21</sup> The 1926 and 1927 ratios, which are almost the same, are larger than the ratio for any other of the nine years studied. In 1921 the ratio is considerably larger than in any year except 1926 and 1927. The 1923 ratio is low for the series, showing average stocks equal to about ten days' shipments as contrasted with a supply for over seven weeks' shipments in 1927.

The stock-shipments ratios for both face brick and common brick have been rising.<sup>22</sup> For face brick this rise has been rapid since 1924. The 1927 ratio is in fact 50 per cent larger than the 1924 ratio. The average stock-shipments ratio for the whole period for which data are available is higher than that for any other of the building industries. The stock-shipments ratio of common brick has been increasing since 1925. The ratio in 1924 was high, but not as high as the 1927 ratio. Apparently common brick manufacturers do not find it necessary to carry as large stocks as do face brick-makers. In 1927 the former had stocks equal to about nine weeks' shipments, while the latter had nearly twelve weeks' requirements on hand.

<sup>21</sup> Data are compiled by the U. S. Department of Commerce, Bureau of the Census, and represent complete production of manufacturers.

<sup>22</sup> Data for face brick are compiled by the American Face Brick Association and are averages per plant because the number of firms reporting varies somewhat from month to month. Data for common brick are compiled by the Common Brick Manufacturers' Association and represent about 30 per cent of the total output of common brick.

It will be observed that in each of the samples taken from the building industry, stock-shipments ratios have been increasing. The increase, however, has been going on only since 1922, 1923, and 1924, prior to which a decline was in process.

## VI. SAMPLES FROM AGRICULTURE

It is impossible under present means of production for society to escape carrying a large stock burden of agricultural products. This will continue to be the case unless we rise so far superior to nature that seasonal production offers no economies.

In the products of the farm, as in the products of the factory, stocks may be held at one point or another. Has there been hand-to-mouth buying of agricultural products in the sense that an increasing stock burden has been carried by the farmer? For those of his crops which are largely consumed on the farm, the question has no relevance, but it is highly pertinent for such market crops as wheat and cotton.

### A. Wheat

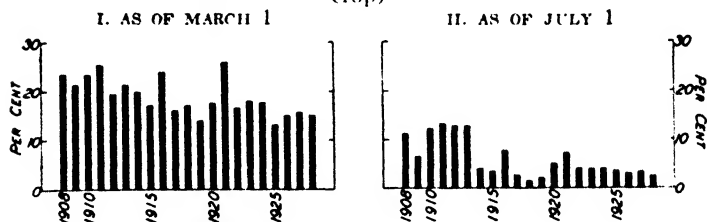
For many years there has been made an estimate of the stocks of wheat held on farms on March 1 of each year, and of the carry-over as of July 1. These data make it possible to calculate the stock burden of this crop that is carried by farmers. The figure, like that computed for canned goods, by giving pictures of the situation late in the shipping season, shows for each

year what the farmer has been carrying to the given points. The stock burden on farms is first expressed as the ratio of stocks on hand March 1, to the crop of the preceding year.<sup>23</sup>

*The stock burden of wheat held by farmers, trending downward since 1911, shows a slight increase during the three years 1925 to 1927. (See chart on this page.)* The downward trend was not continuous for every year. For the seven years following 1921 farmers were carry-

#### STOCK BURDEN OF THE WHEAT GROWER, 1908-1928

(Wheat on farms at given date as a percentage of preceding year's crop)



ing a slightly greater percentage of the preceding year's crop than for the four years 1917-1920. But the average of those seven years shows a definitely lower burden than that of *any* of the years 1908 to 1916 inclusive.

<sup>23</sup> The method used has been to divide the wheat on farms as of March 1, for each year of the series by the crop produced in the preceding year. Data are from the *Annual Reports* of the Chicago Board of Trade. This stock burden figure is not entirely comparable to most others in this chapter, because the stocks on hand at a particular date are in this case related to a year's production instead of average stocks being related to an average month's shipments. This was done because both stocks on hand and production of wheat are so very seasonal that averages of one compared to averages of the other seem to have no meaning.

A second measurement of stock burden of wheat for the period 1908-1928 was made by using stocks on farms at the end of the crop year instead of on March 1. This disclosed that the farmer is carrying over into the new crop year a smaller proportion of wheat than was formerly the case.\* (See chart on page 252.) The stock burden on the farmers' hands on July 1 was lower for the years 1917, 1918, and 1919 than for any other year since 1908; and the period from 1914 to 1919 was a period of low carry-over as contrasted with the six years preceding. The farmer was assuming a larger stock burden at the end of the year both in 1920 and 1921 than in each preceding year respectively, but has been carrying a smaller proportion since that time. The most striking fact shown was the very high percentage of the crop carried over in all the years 1908-1913.

Putting the conclusions from both measurements in current terms of trade talk, it may be said that there was *more* hand-to-mouth buying of wheat from farmers during the six years following 1921 than in the four years preceding that year. There has been *less* hand-to-mouth buying of wheat since 1921, than was the case prior to 1916. From 1908 to 1916 hand-to-mouth buying of wheat from the farmer was more general, by both measurements, than it has been since.

It is common, when stocks accumulate in farmers' hands, to speak of a holding movement. It would per-

\* In computing these ratios, wheat on farms on July 1, of each year respectively was divided by the production of the preceding year. Data are published in the *Annual Reports* of the Chicago Board of Trade.

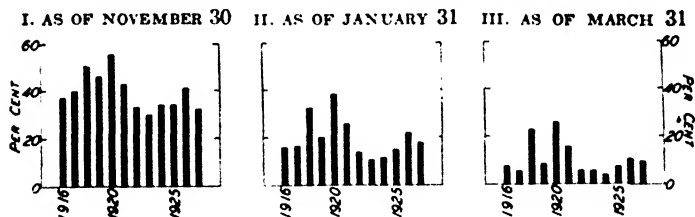
haps, therefore, be more accurately descriptive to refer to the periods of high stocks of grain as periods of hand-to-mouth selling.

### B. Cotton

*The stock burden of cotton held by farmers has varied widely since 1916.*<sup>22</sup> (See chart on this page.) A similar conclusion is reached whether we consider the percentage of the year's crop in the hands of farmers at the end of November, January, or March. The load carried

#### STOCK BURDEN OF THE COTTON GROWER, 1916-1927

(Cotton unmarketed at given date as percentage of the crop for the crop year beginning preceding August 1)



increased with a good deal of uniformity from 1916 through 1920 and then declined steadily through 1923. It increased noticeably from 1923 to 1926 but was less in 1927.

<sup>22</sup> The percentage of the year's cotton crop not yet marketed at certain dates, November 30, January 31, March 31, is used to indicate year to year changes in the stock burden of cotton farmers. The percentage of each year's crop marketed in each month is compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, from a moderate number of reports to inquiries sent to farmers July 1, of each year. Here again stock burden is a ratio of stocks on hand at a given date to a year's production and is not, therefore, directly comparable to the stock burdens which are ratios of average stocks to average monthly shipments. Data are published in the U. S. Department of Agriculture *Yearbooks*.

## VII. UNCLASSIFIED INDUSTRIES

The preceding sections have been given to samples of industries in groupings which are commonly recognized. There are many commodities, however, which cannot be so readily placed in recognized and useful categories. This is true of those studied in this section. The fact that these samples have not been classed in industry groups is in no way intended to imply that they are less significant than those discussed above.

### A. Boots and Shoes

The changes in inventories of eight shoe manufacturing companies were studied. As no data showing monthly inventories for these specific companies were available, it was necessary to use the inventory at a given date rather than the average.\* (Clearly enough, conditions of hand-to-mouth buying might cause the significance of inventory at a given date to be different from what it is under forward buying conditions.) Stock burden was then computed by converting this inventory into a percentage of the average monthly sales of the company. Though there was found to be much variation among the eight companies, certain of them were found to follow similar trends and were therefore grouped and averaged instead of being considered separately. The chart on page 256 presents averages of three companies for the period 1915-1927 and of two other companies for the period 1918-1928. The experience of the three

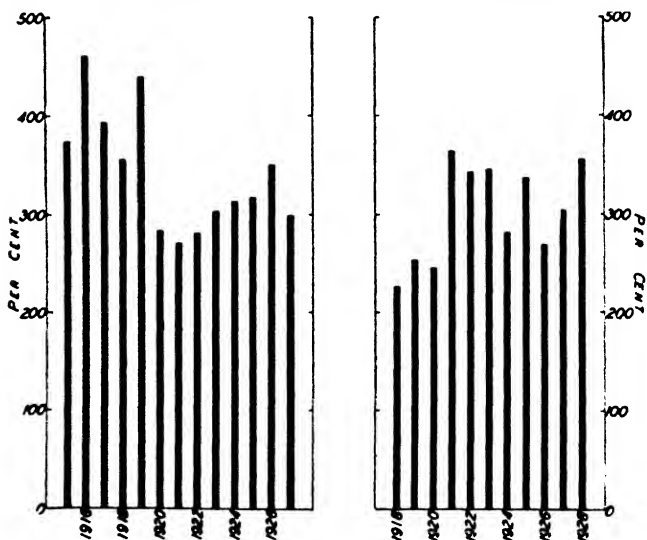
\* Data are those published in *Poor's* and *Moody's Manuals*.

other companies for which only four or five years' data are available was not charted but is shown in the table on page 257.

### STOCK BURDEN OF SHOE MANUFACTURERS

(Inventory at a given date as a percentage of average monthly sales for the year ending at that date)

I. AVERAGE FOR THREE COMPANIES, 13 YEARS      II. AVERAGE FOR TWO COMPANIES, 11 YEARS



*The three companies for which 13 years' data are available show an average stock burden much lower beginning with 1920 than for the five preceding years. There was a slight upward trend in the average burden from 1921 through 1926, with a decline in 1927. The average stock burden for this group in the pre-depres-*

# STOCK BURDEN OF GOODS

257

## STOCK BURDEN FOR SHOE MANUFACTURERS<sup>a</sup>

(Inventory at a given date expressed as a percentage of average monthly sales for the year ending at that date)

Year	Brown Shoe Company (October 31 <sup>b</sup> )	Craddock-Terry Company (December 31 <sup>c</sup> )	Hamil-ton-Brown Shoe Company (December 31 <sup>d</sup> )	Average for Three Companies Given	Endicott-Johnson Corporation (December 31)	International Shoe Company (November 30)	Average for Fourth and Fifth Companies Given	Johnson-Stephens, and Shinkle Shoe Company (November 30 <sup>b</sup> )	United States Shoe Company (Approximately May 1 <sup>f</sup> )	Johansen Brothers Shoe Company (October 31 <sup>b</sup> )
1915.....	374.4	367.2	375.6	372.4	...	...	...	...	...	...
1916.....	396.0	426.0	560.4	460.8	...	...	...	...	...	...
1917.....	363.6	386.4	430.8	393.6	...	...	...	...	...	...
1918.....	303.6	397.2	366.0	355.6	272.4	180.0	226.2	...	...	...
1919.....	410.4	390.0	522.0	440.8	345.6	160.8	253.2	...	...	...
1920.....	260.4	312.0	278.4	283.6	234.0	256.8	245.4	...	...	...
1921.....	268.8	297.6	242.4	269.6	340.8	382.8	361.8	...	...	...
1922.....	258.0	304.8	274.8	279.2	346.8	336.0	341.4	...	...	...
1923.....	270.0	326.4	312.0	302.8	349.2	338.4	343.8	112.8 <sup>e</sup>	188.4	...
1924.....	248.4	337.2	351.6	312.4	286.8	274.8	280.8	109.2 <sup>e</sup>	212.4	201.6 <sup>e</sup>
1925.....	276.0	348.0	326.4	316.8	356.4	312.0	334.2	...	...	178.8 <sup>e</sup>
1926.....	226.8	379.2	444.0	350.0	262.8	270.0	266.4	88.8	196.8	192.0
1927.....	214.8	226.8	447.6	296.4	303.6	302.4	303.0	87.6	146.4	187.2
1928.....	...	300.0	...	...	364.8	344.4	354.6	90.0	...	...

<sup>a</sup> Data are from *Poor's* and *Moody's Manuals*.

<sup>b</sup> Net sales used.

<sup>c</sup> Gross income used in place of sales.

<sup>d</sup> Volume of business used in place of sales.

<sup>e</sup> 1924 inventory was given as of December 31. Sales for eleven months ending November 30, 1925, were raised to twelve months on the basis of the average month.

<sup>f</sup> Gross sales used.

<sup>g</sup> Year ending August 31, 1925, and 14 months ending October 31, 1926, sales reduced to twelve months on basis of average month.



sion period contrasts with that in the post-depression period as follows:

1915-1920 .....	384
1921-1927.....	304

*The average of two companies reporting for a series of eleven years shows a somewhat heavier stock burden beginning in 1921 than for the three preceding years.* There was a marked trend toward heavier stock burden from 1926 through 1928. Except for a rather wide spread in 1919, when the stock burden of the Endicott Johnson Corporation increased and that of the International Shoe Company declined, the experiences of these two companies have been almost identical.

The ratio of inventory to sales in this trade is strikingly high when compared to some of the commodities studied. This is, no doubt, in part accounted for by the fact that the inventory statements are in most cases made towards the close of the year, when shoe manufacturers' inventories are typically near one of the seasonal peaks.

### B. Gasoline and Pneumatic Tires

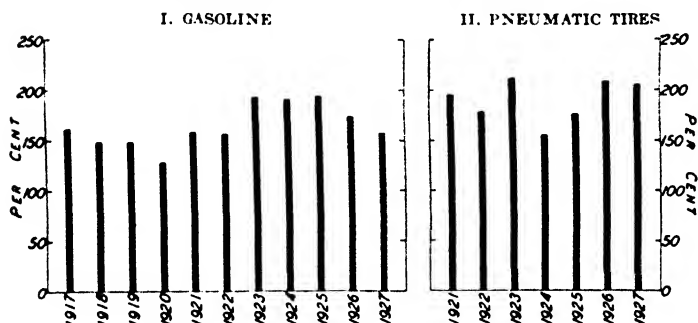
The tremendous increase in the production of gasoline lends interest to the stock burden of that product.<sup>7</sup> Although pneumatic tires are produced by a completely distinct industry their association with gasoline in con-

<sup>7</sup> Data are stocks of gasoline ready for sale held at refineries and estimated consumption of refined gasoline as compiled by the U. S. Department of Commerce Bureau of Mines. Since June, 1923, marketers' stocks have been included, and consumption figures since then take account of this change. Data for stocks (1917-1919) and for shipments (1917-1923) were published in the *Standard Daily Trade Service* of April 21 and of January 21, 1924, respectively.

sumption permits of their being logically discussed in the same paragraphs.

*The stock burden for gasoline has been declining since 1925; that for pneumatic tires has tended toward an increase in recent years.* (See chart on this page.) The declining stock burden for gasoline is significant in

**STOCK BURDEN FOR GASOLINE AND FOR PNEUMATIC TIRES**  
(Monthly average of stocks for calendar year as a percentage of average monthly shipments for 12 consecutive months, beginning with July of the same year)<sup>a</sup>



<sup>a</sup> For gasoline a figure for consumption, which approximates shipments, is used instead of shipments.

view of the rapidity with which stocks have been advancing and the alarm which the industry has felt over these increasing stocks. There was held in stock in 1925 enough gasoline for almost two months' supply. In 1927, stocks averaged only a little more than enough for six weeks' needs. Up to 1925 the stock burden had advanced from a low point in 1920. The 1923 and 1924 ratios are almost the same as the 1925 ratio; the 1921 and 1922 ratios are as low as that of 1927, and the ratios

for every year before 1921 are lower than that of 1927. Thus while the stock burden situation in gasoline has been improving during the last few years, it was in 1927 no lower than in 1921 and 1922, and not so low as in still earlier years.

Data make it possible to measure the stock burden of tires for a series of seven years.<sup>28</sup> The stock shipments ratio of pneumatic tires increased from 1924 to 1926, but dropped somewhat in 1927. (See chart on page 259.) The highest ratio of the series of years beginning with 1921 was in 1923; the lowest in 1924. The manufacturers of tires carry, on the average, stocks for about two months' tire requirements.

It seems best to postpone general conclusions until the end of chapter XIV when further evidence will have been considered. Conclusions concerning the stock burden of the specific commodities and industries discussed have been made in each section.

<sup>28</sup> Data on pneumatic tires are compiled by the Rubber Association of America and represent over 75 per cent of the industry. Stocks are those owned by factories whether they are held at factories or elsewhere in the U. S. Shipments represent only domestic shipments to purchasers where a transfer of ownership occurs.

## CHAPTER XIII

### STOCK BURDEN OF RAW MATERIALS

The preceding chapter was devoted to determining whether the stock burden, with particular reference to finished goods, has been increasing or decreasing. The measurement was made by comparing stocks with volume of business done in various years. In this chapter attention is given to inventories of raw materials in the hands of manufacturers. The question is, are those inventories increasing or decreasing in relation to the requirements of manufacture? Are they constituting a greater or less stock burden for the manufacturer? It is possible that even though the manufacturer is carrying a lighter burden in finished goods, he has not escaped a heavier one in his raw materials storeroom.

To secure an answer to the question of stock burden of raw materials, data were obtained from about 130 members of the National Association of Purchasing Agents, scattered in various parts of the country, representing over 15 commodity groups, and buying a great variety of materials.<sup>1</sup> These purchasing agents reported

<sup>1</sup>This inquiry was made possible through the courtesy and cooperation of Mr. G. A. Renard and Mr. B. W. Hall, of the National Association of Purchasing Agents.

their stock burden for a series of years by answering the following question :

What was the average inventory of your company as a percentage of the year's requirements in each of the following years:

	1914	1918	1922	1924	1926	1928
Commodity.....						

Some companies reported on only one commodity, some on more. The data as given in these returns expressed stock burden as a ratio of inventory to twelve months' requirements. Computations have been made so that the stock burden as presented is the average inventory expressed as a percentage of a month's requirements.

The reports showed great range of stock burden as among different materials, among different companies reporting on the same kinds of materials, and as among the various years. In some cases it was reported that less than 120 per cent of a month's requirements was carried as average inventory; in some cases more than 900 per cent was reported. Did the reports showing low stock burden become a larger proportion of the replies covering a given year as 1928 was approached? Or, as the years from 1914 to 1928 were passed, did the reports more commonly show that a larger supply of materials was necessary in relation to manufacturing requirements?

To answer these questions, it was necessary to make an appropriate classification of the replies on the basis of stock burden reported. With stock burden defined as above—to mean average inventory as a percentage of

monthly requirements—the reports for each year were sorted into the following stock burden classes:

Less than 120
120 to 240
240 to 360
360 to 480
480 to 600
600 to 900
900 or over

The number of reports in each class, being counted, was expressed as a percentage of the total for the given years, thus making it possible to compare one year's data with another.

*The stock burden of materials shows a marked decline during the last ten years.* The table on this page shows that an increasing number of cases fall into the low burden classes as the years pass.

#### NUMBER OF REPORTS SHOWING INDICATED STOCK BURDEN

(As a percentage of the total number of reports for each year)

Stock Burden (Average inventory as a percentage of the average month's requirements)	1914 (78 reports)	1918 (92 reports)	1922 (115 reports)	1924 (126 reports)	1926 (131 reports)	1928 (129 reports)
Less than 120...	10	11	15	17	17	25
120 to 240 . . .	21	18	22	25	32	<b>36</b>
240 to 360.....	<b>30</b>	<b>25</b>	<b>33</b>	<b>33</b>	<b>37</b>	<b>26</b>
360 to 480.....	15	18	15	12	6	7
480 to 600.....	5	8	4	3	1	0
600 to 900.....	14	13	3	5	5	5
900 or over.....	5	7	8	5	2	1

The proportion of the cases in which a stock burden of less than 120 was reported more than doubled from 1914 to 1928. While in every year from 1914 through 1926 a stock burden of from 240 to 360 is the one

most commonly reported, in 1928 a stock burden of from 120 to 240 has become the most common.

Reports of cases where stocks were 900 per cent or more of a month's requirements declined from 5 per cent of the replies in 1914 to 1 per cent in 1928. They represented a larger proportion of the total, however, in 1918 and 1922 than in 1914.

The increasing proportion of reports showing a smaller stock burden is strikingly brought out by expressing as a percentage of all the reports for the given years those showing a stock burden of less than 360 and those giving a burden of 360 or more.

Stock Burden	1914	1918	1922	1924	1926	1928
Less than 360.....	61	54	70	75	86	87
360 or more.....	39	46	30	25	14	13

"On the average" American manufacturers are carrying a constantly diminishing burden of raw materials. There were 88 returns which reported stock burden for each of the years 1918, 1922, 1924, 1926, and 1928. The average of these dropped steadily from 372 in 1918 to 216 in 1928. Averaging the ratios—stock burdens—for each year we have: \*

1918.....	372
1922.....	314
1924.....	276
1926.....	240
1928.....	216

But have the changes discussed been brought about by a great change in a small proportion of the cases, or

\* It must be noted that in this average small and large concerns are given the same weight and that no account is taken of the fact that some commodities are included more times than others. It is, therefore, as stated merely an average of the ratios and not the average stock burden for the concerns included.

is it true that in a large proportion of cases inventory burden has been lightened? To answer this question, the reports showing a decrease, no change, or an increase in stock burden were counted. These counts, expressed as a percentage of the total, were as follows:

	1924 Compared With 1914	1928 Compared with 1924	1928 Compared with 1914
Decrease .....	50	47	64
No change .....	41	44	29
Increase .....	9	9	7

It appears that in over 60 per cent of the cases stock burden decreased between 1914 and 1928. In nearly half of them the burden decreased between 1924 and 1928. In each of the periods considered, less than 10 per cent of the reports show an increase in stock burden.



## CHAPTER XIV

### STOCK BURDEN OF GOODS IN THE HANDS OF MERCHANTS

In a preceding chapter the stock burden of producers other than merchants was considered. The method employed was to compare stocks with shipments, apparent consumption, or some other appropriate measure of volume of business. One way of determining the stock burden is by an examination of stock turnover, and in dealing with the stocks and sales of merchants this method is the most convenient one to use.<sup>1</sup> If the stock burden is lighter, this is shown by an increase in turnover. Or, to put it the other way around, an increase in turnover reflects a lessened stock burden—a smaller proportion of inventories to sales. In the discussion that follows samples from wholesale and from retail trade are considered.

#### I. STOCK BURDEN OF WHOLESALE

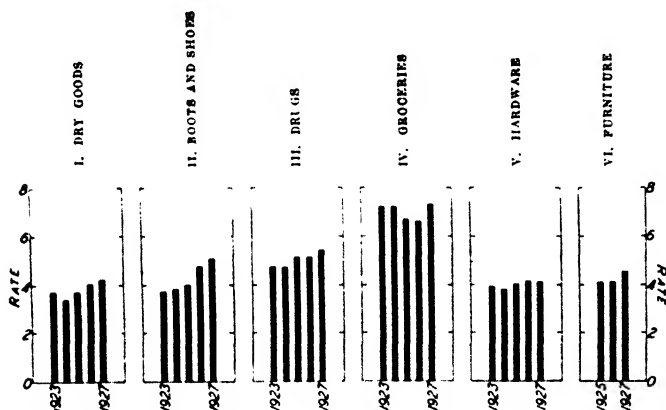
Stock turnover figures in six major wholesale lines were examined.<sup>2</sup>

<sup>1</sup> Annual stock turnover is commonly determined by dividing the total cost of sales for the year by the average of the monthly inventory taken at cost. A discussion of methods for determining turnover and of applying it to various phases of business may be found in any standard work on management, marketing, or retailing.

<sup>2</sup> For the years 1923-1925 the turnover figures presented were obtained from the Federal Reserve Board. For the years 1926-1927,

*In a considerable majority of trades the stock burden of wholesalers has been decreasing. (See chart on this page.) In some cases this is more marked than in others, but in no instance is it revolutionary.*

STOCK TURNOVER OF WHOLESALERS, 1923-1927 <sup>a</sup>



<sup>a</sup> See footnote 2, page 266.

The turnover in wholesale dry goods has been tending upward. Every year since 1924 has shown an advance. The 1924 turnover was slightly less than that in 1923. Although the total change is not great, there is no evidence here of added inventory burden.

they were estimated on the basis of the turnover figure for 1925 and the data for stocks and shipments furnished by the Federal Reserve Board. The method of estimating used was to convert the stocks and shipments relative to a 1925 base: to multiply the new shipments relative by the turnover of stocks in 1925 and divide this by the new stocks relative. Data for 1923 and 1924 were not available for furniture

The stock turnover of boots and shoes in the wholesale trade has been increasing steadily since 1923.<sup>3</sup> Particularly sharp was the increase in 1926 and 1927. From a low of 3.67 in 1923, a high of 4.96 was reached in 1927. Of course these expressions of stock turnover can easily be translated into the terms of stock burden used in the preceding chapters. An annual stock turnover of four, for example, means that there has been on hand an average inventory of one-quarter of the goods sold during the year. That is to say, there has been an average inventory sufficient for three months' sales. If we think of stock burden as the percentage ratio of average inventory to one month's sales, it follows that stock equivalent to one month's sales is a stock burden of 100. Stock equivalent to three months' sales is a stock burden of 300. Thus a stock burden of 300 is equal to a turnover of four.<sup>4</sup> In terms of stock burden, the low turnover of 3.67, reached in 1923, equals 327; and the turnover of 4.96 reached in 1927 equals a stock burden of 242. This conclusion checks very closely with that reached in the study of stock burden for eight shoe manufacturers as presented on pages 255-258.

The turnover of drugs at wholesale has increased almost uniformly during the past five years. The turnover

<sup>3</sup> The data collected by the Research Division of the Federal Reserve Board, which were obtained for calculating this series, include the sales of a considerable number of important manufacturers, as well as sales of wholesalers. It is probable that this series could as justifiably be used to show the stock turnover of manufacturers as of wholesalers. For a discussion of the construction of these data see *Federal Reserve Bulletin*, December, 1927, p. 820.

<sup>4</sup> A short cut to computing stock burden from annual turnover is to divide 1200 by the stock turnover.

in 1927 is 5.35 as compared with 4.69 in 1923. Here is evidence of decreased rather than heavier inventory burden.

The stock turnover of wholesale grocers declined from 1923 through 1926. This is evidence that wholesale grocers have carried a heavier inventory burden since 1923. But if 1927 is an indication, this situation is on the way to improvement. It is worth noting that in every year the turnover is higher, which means that the stock burden is lower, than in any of the other wholesale trades considered. The turnover in the wholesale grocery trade showed no significant trend from 1916 to 1923,\* although there are some sharp changes from year to year. From a turnover of 5.7 in 1916 there was a decline followed by a rise to 6.1 in 1920. In 1921 the turnover was the lowest for the 1916-1923 series of years. In 1922 it was the same as in 1916.

The hardware trade shows no significant change in stock turnover during the period 1923-1927. There is no evidence that current buying methods have affected stock burden of hardware wholesalers. Turnover was down in 1924, but higher in the last two years of the period than in the others.

The stock turnover in the wholesale furniture trade was higher in 1927 than in either of the two preceding

\* Stock turnover data for wholesale groceries for 1916 to 1923 are published in the *Bulletins* of the Harvard Bureau of Business Research. While these figures make it possible to study the changes from year to year for the period covered, the series must not be compared directly to the series discussed in the preceding part of the paragraph, as the data obtained by the Federal Reserve Board show continuously a higher turnover than the Harvard figures.

years.\* So far as this short period gives any evidence, it indicates that stock burden is decreasing.

## II. STOCK BURDEN OF RETAILERS

The stock burden of retailers, as of wholesalers, is best seen in terms of stock turnover. As in the latter case, an increasing turnover means a decreasing inventory in proportion to sales.

*The evidence shows very little change in stock burden of various retail lines.* The stock turnover for retailers of shoes, groceries, jewelry, and hardware for a series of years is presented in the chart on page 271.<sup>1</sup>

Studies in particular localities give some evidence concerning the turnover of grocery retailers. In Colorado, for example, grocery retailers' stock turnover is reported as shown in the chart on page 271.<sup>2</sup> A study of stock turnover of retail grocery stores in Omaha and Lincoln and in stores located elsewhere in Nebraska is shown in the chart on page 271.<sup>3</sup> The data from the

\*In this trade, as in boots and shoes, the data are heavily weighted by the reports of manufacturers. The turnover is, therefore, perhaps as representative of manufacturers' as of wholesalers' experiences. (See footnote 3, p. 268.)

<sup>1</sup>Data for shoes, 1912-1923, for groceries, 1914-1924, and for jewelry, 1919-1927, are from *Bulletins* of the Harvard Bureau of Business Research. Data for shoes, 1924-1926, compiled by the National Shoe Retailers' Association, were published in *National Footwear* for August, 1925, June, 1926, and August, 1927. The 1925 turnover was reported as 1.8 in the 1926 issue and as 2.1 in the 1927 issue with no explanation of the change. Data for hardware, 1922-1927, are from The National Retail Hardware Association.

<sup>2</sup>Data are from *Bulletins* of the Bureau of Business and Government Research of the University of Colorado.

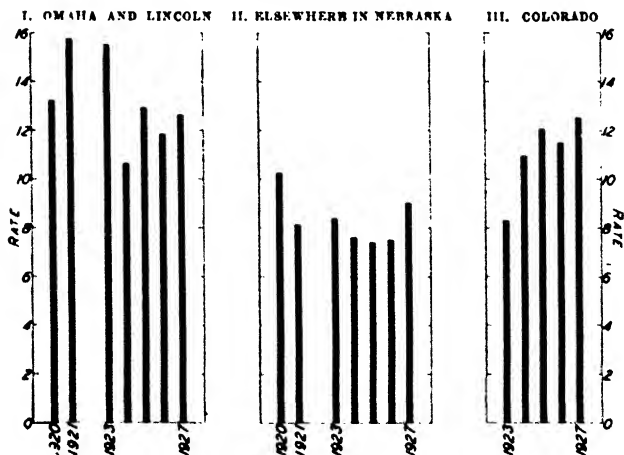
<sup>3</sup>Data are from *Bulletins* of the Committee of Business Research of the University of Nebraska.

STOCK TURNOVER IN VARIOUS RETAIL LINES<sup>a</sup>



<sup>a</sup> See footnote 7, page 270.

STOCK TURNOVER OF GROCERY RETAILERS IN COLORADO AND NEBRASKA<sup>a</sup>



<sup>a</sup> See footnotes 8 and 9, page 270.

Nebraska study do not show improvement in the situation either for city or country dealers. Indeed, the trend of turnover seems downward in both cases. It is interesting to note, however, that stock burden in larger cities is disclosed as being much smaller than in outside points.

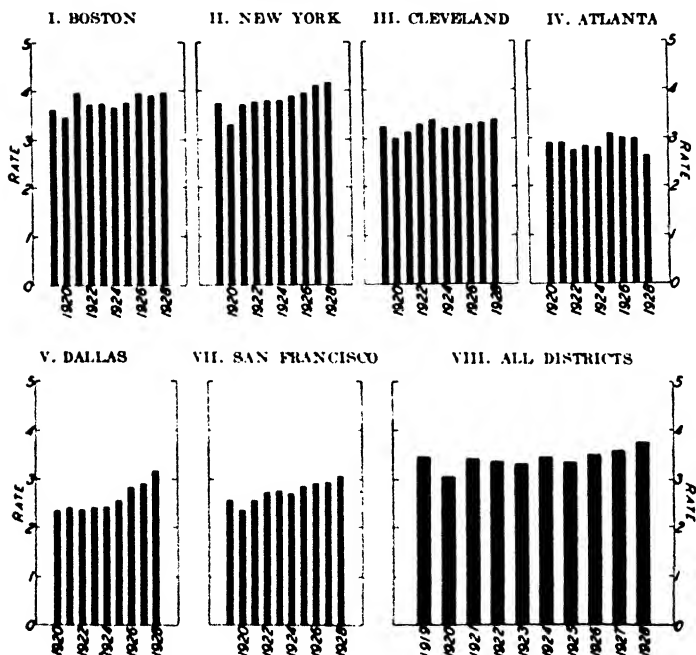
*The turnover in department stores is increasing slightly, thus evidencing a lessening stock burden.\** (See chart on page 273.) The year 1920 was a bad year for department stores with respect to turnover. Taking the United States as a whole, the rate was only 3.05. It was 1925 before the turnover for the whole United States was again as high as it had been in 1919. After 1925 the turnover continued to increase through 1928, when it reached 3.67. Each of the last four years (1925-1928) has been better than any of the six (1919-1924) that preceded.

The variations among several districts are interesting. The New York district shows an unbroken upward trend of stock turnover from 1920 through 1928. Dallas and Boston show similar upward trends, but each of these is broken by the turnover in 1921, which was higher than in 1922. The San Francisco district shows an upward trend from 1920 through 1928, broken only by the turnover in 1924, which was lower than in 1923.

\* Basic data for 1919-1924 are from the Federal Reserve *Bulletin* for May, 1925, p. 332; and for 1925-1928 are from mimeographed releases of the Federal Reserve Board on the subject of retail trade. The number of stores reporting has increased from about 300 in the earlier years to about 650 in later years. As these data are not comparable throughout the series, a chain relative was computed, using the actual turnover in 1928 as the base figure. Six Federal Reserve districts were considered separately to determine possible differences in different parts of the country. Data for Dallas and Atlanta are not available for 1919.

Atlanta is unique in that it shows a declining turnover from 1925 through 1928, with 1928 showing the lowest rate in the whole series of nine years. The Boston and

STOCK TURNOVER OF DEPARTMENT STORES IN SPECIFIED FEDERAL RESERVE DISTRICTS <sup>a</sup>



<sup>a</sup> See footnote 10, page 272.

New York districts show higher turnover in every year than does the United States as a whole. Each of the other four districts considered (except Cleveland, in 1923) is lower in each year than is the average for the United States. In fact, the highest turnover ever at-



tained in the San Francisco district (3.04 in 1928) is lower than the lowest turnover in the United States as a whole (3.05 in 1920).

Considering all the evidence on retail stock turnover, it is clear that while there has been some improvement, chiefly in department stores, the stock burden for retailers shows very little indication of current improvement.

*A general conclusion on stock burden.* The general conclusions that can be drawn as to stock burden vary somewhat with the nature of the industry considered. American production as a whole may be divided into two classes so far as stock burden is concerned. In agriculture, in many industries definitely related to agriculture, and in some others the economies of seasonal production make large stocks unavoidable. In many lines of manufacture, stocks can be reduced by improved practice in manufacturing, selling, and in purchasing. Obviously in wholesaling and retailing the buying policy of the merchant may be a dominant factor.

There is evidence showing that a larger burden of the stocks of agricultural products has been carried by the farmer since 1921 than for the period between the outbreak of the war in Europe and that date. Of canned foods, sugar, and cheese, all immediately dependent upon seasonal production, the manufacturer or storer has in recent years been carrying a heavier stock burden than formerly. In such products where the burden must be borne by someone, there has been, in other words,

a tendency to keep an increased part of it at the point of first or early incidence.

The other industries studied, however, give no reason for concluding that in general manufacturers are, compared with those to whom they sell, worse off in the matter of stock burden than they were a number of years ago. A fully satisfactory opinion on this point would require a more complete comparison of the present and the past division of burden among successive participants in many industries than has been made. Yet it is significant that the evidence shows only a slight lessening in the stock burden of retailers and somewhat more lightening of the burden carried by wholesalers and, omitting the building trades, more cases of decreased than increased burden among manufacturers. From such observations it seems a reasonably safe conclusion that where the conditions of production make it possible to control stocks, current buying methods have shifted no new load to manufacturers or wholesalers generally and that, on the contrary, either by adjusting their production to these methods or by revising their own purchasing practices, or both, they have in many cases decreased the stock burden carried.

There is indication in these facts that American industry as a whole is doing its business with a considerable tendency towards smaller proportionate investment in stocks of raw materials and finished goods. Excepting, of course, the seasonally produced products and the building industry, which constantly injects itself as an exception in this study of stock burden, the

weight of evidence points in that direction. Retailers have made some improvement; wholesalers some gain; and manufacturers an improvement in more cases than otherwise, particularly in their stocks of raw materials. The effects of this situation and of its possible continuance are worth careful consideration. To the degree that the stock burden of raw materials and of finished goods has been lightened in the period since 1920, our national business has been carried on with less money invested in proportion to the amount of business being done. It is quite probable that this has contributed to the "plethora of funds," the low interest rates, and the credit freely available for instalment buying and speculation. These trends tend also to shift the purposes for which and the points at which funds are most needed. If farmers or canners of food products, for example, are required to carry a larger part of their products for a longer period than before, short term credit will be needed by them to a greater degree than formerly, and facilities will be required for making it intelligently available. If the releasing of funds from the stocks of industry permanently affects prices of securities, important stock exchange centers will become increasingly important as banking centers. It may easily be that such trends will give a new importance to certain types of borrowers, to certain borrowing areas, and to certain money markets.

## **B. STABILIZATION?**



## CHAPTER XV

### IS THE FLOW OF ORDERS BECOMING MORE STABLE?

Chapter II was in part devoted to pointing out that our method of specialized production results in a flow of partly finished goods from unit to unit of the production mechanism. It was shown that this flow is in considerable part controlled by a flow of orders. The two together constitute what we call trade. The question is now raised whether current methods of buying—current trade practices—are resulting in an improved stability of trade. The flow of orders and the flow of goods will have separate consideration. The flow of orders which controls the flow of goods may, like a stream, vary in the uniformity of its current. During a given year commitments may be given from month to month with little variation; in another year they may flood through the channels of trade in one month, and in another drop to a listless rivulet.

The purpose of this chapter is to consider whether the flow of orders is becoming more or less uniform. This question raises a preliminary one: How can the uniformity of the flow be measured?

### I. A METHOD OF MEASURING RELATIVE STABILITY OF FLOW

The method used in this study for measuring the uniformity of flow of orders is one with which statisticians are entirely familiar.<sup>1</sup> It is known as determining the average percentage deviation from the arithmetic mean. Lay readers, however, may welcome the following brief explanation of the steps involved in the calculation. First the arithmetic average of the series is obtained; and the difference between each item of the series and this average is secured. These differences are then averaged without regard to whether they are above or below the mean, and the result thus obtained is expressed as a percentage of the arithmetic average of the series.

The use of this method in measuring uniformity of flow of orders, can be readily seen from a specific example. A company, for example, receives orders in two consecutive years as follows (in thousands of dollars):

Month	1920	1921
January . . . . .	64	12
February . . . . .	33	14
March . . . . .	38	24
April . . . . .	37	27
May . . . . .	35	25
June . . . . .	22	23
July . . . . .	25	24
August . . . . .	28	25
September . . . . .	18	28
October . . . . .	10	32
November . . . . .	5	33
December . . . . .	3	15

---

<sup>1</sup> The same method is used in subsequent discussions to measure the uniformity of the flow of goods, the uniformity of stocks held, and the uniformity of production.

The arithmetic average of these for each year is:

1920	1921
26.5	23.5

The deviations of the monthly data from their respective averages are:

Month	1920	1921
January .....	37.5	11.5
February .....	6.5	9.5
March .....	11.5	0.5
April .....	10.5	3.5
May .....	8.5	1.5
June .....	4.5	0.5
July .....	1.5	0.5
August .....	1.5	1.5
September .....	8.5	4.0
October .....	16.5	9.0
November .....	21.5	9.5
December .....	23.5	8.5

The average of these deviations for each year is:

1920	1921
12.7	5.0

The average of the deviations expressed as a percentage of the average monthly value of orders received for each year is: \*

1920	1921
47.8	21.1

Finally, these "average percentage deviations" may be charted so that a visual comparison of the flow of orders in one year may be made with that for another, and the uniformity of flow can readily be seen. If this method of measuring uniformity is applied to the orders received for a series of years, the variability of the flow of orders for the different years may be compared

\* If one had more or less frequent data the method would be the same.



with one another. If the same method is applied to several commodities, the uniformity of flow of orders of any one commodity may be compared with that of others.

While average percentage deviation is under ordinary business conditions a satisfactory measure of seasonal movement, it becomes much less satisfactory where there are violent changes which cannot be ascribed to ordinary seasonal influences. In succeeding chapters it is occasionally remarked that the deviations for certain years are not to be taken too seriously. In those cases it is usually such an influence as here noted that causes the difficulty.

There are certain industries in which the placing of an order for a given unit of goods takes place coincident with or, at most, only slightly before, the goods themselves move. The marketing of wheat by the farmer and by the country buyer furnishes an example. "Cash and carry" retail selling is an even better case. It has seemed best in this chapter, therefore, not to consider the flow of orders in such types of industry.<sup>7</sup>

For this study of orders it was possible in some cases to obtain compiled data for certain commodities and in others to secure statistics for individual companies. The two types of data are considered separately.

<sup>7</sup>The sale of certain products where orders and goods move almost simultaneously receives consideration on pp. 301-303, 306-311, 335-342, where the flow of goods is discussed, and these sections may be referred to as examples of the flow of orders for such products.

## II. VARIATION AND STABILIZATION IN SEVERAL INDUSTRIES

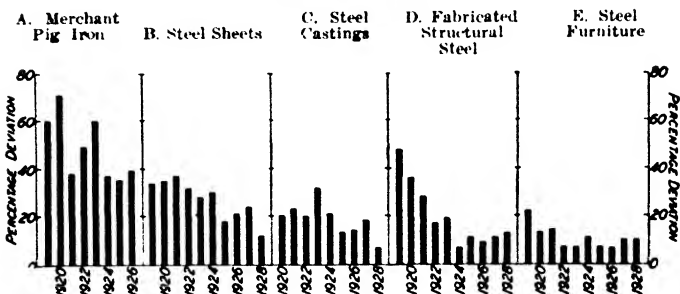
By means of the method explained in the preceding section, the flow of orders in a number of industries has been measured and the results set forth in the chart on page 284. The industries studied have been classed into four groups: iron and steel, represented by merchant pig iron, fabricated structural steel, steel sheets, steel castings, and steel furniture; the building industries, represented by building contracts awarded, oak flooring, southern pine, and enameled ware baths; the textile industries, represented by finished cotton goods, hosiery, and knit underwear; and furniture, represented by the orders of one large manufacturers' association.\*

\* Data are orders received by the manufacturers of the goods in question for steel castings (in tons), representing about 80 per cent of the industry; for steel furniture ("business group," in dollars), representing all of the industry; for enameled ware baths (in number of pieces), representing 100 per cent of the industry; and for hosiery (in number of pairs), representing 44 per cent of the industry, all compiled by the U. S. Department of Commerce, Bureau of the Census; for merchant pig iron (in tons), representing about 90 per cent of the production in strictly merchant furnaces, compiled by the American Pig Iron Association, and published in the "Metals and Machinery Section" of the *Record Book of Business Statistics*; for fabricated structural steel (in tons), compiled first by the Bridge Builders and Structural Society and later by the U. S. Department of Commerce, Bureau of the Census; for steel sheets (in tons) representing almost all of the independent steel sheet manufacturers, compiled by the National Association of Flat Rolled Steel Manufacturers; for oak flooring (in board feet), representing 90 per cent of the industry, compiled by the Oak Flooring Manufacturers' Association; for southern pine (in board feet), compiled by the Southern Pine Association; for finished cotton goods (gray yardage), compiled by the National Association of Finishers of Cotton Fabrics; for knit underwear (in number of garments), representing about 61 per cent of the industry, compiled by the U. S. Department of Commerce, Bureau of the

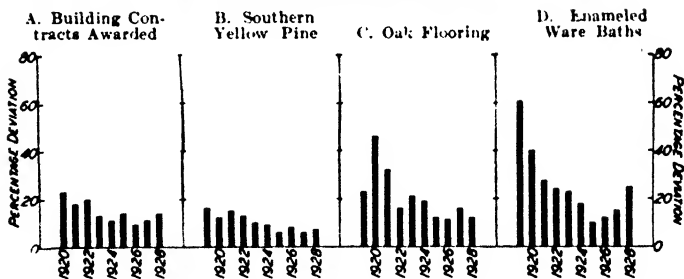
## THE FLOW OF ORDERS IN SPECIFIED INDUSTRIES

(Average percentage deviation of monthly orders from the arithmetic mean for the given calendar year)

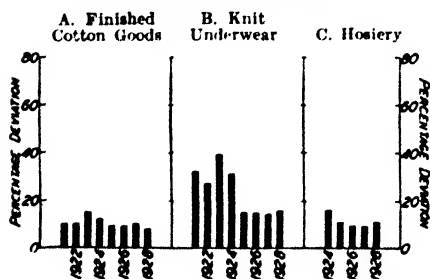
## I. IRON AND STEEL



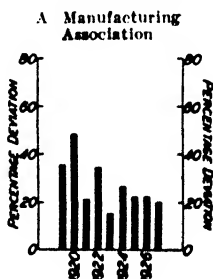
## II. THE BUILDING INDUSTRY



## III. THE TEXTILE INDUSTRY



## IV. FURNITURE



*In every industry group studied there is strong evidence of improvement in the stability of the flow of orders since 1919 or 1920. This improvement is most striking in the building industry, every sample showing a decided improvement during the period. In four out of five of the steel samples the gain in stability is also considerable. In the textile industry two of the three samples show a materially improved stabilization of flow. There is also decisive improvement shown in the furniture sample.*

*The increasing stability since 1919 or 1920 has by no means been continuous in every industry. Disregarding the industry groupings and examining each sample, it will be seen that in a number of cases there occurred an increase in uniformity, followed by an increase in variation and then again an increase in uniformity. The years 1923 and 1924 are those which most frequently interrupted the trend toward improving stability. In ten of the thirteen samples the deviations in 1923 or in 1924 or in both years were higher than in the years immediately preceding or following. Striking examples are orders for knit underwear, the flow of which in 1923 was more erratic than that in any other year of the series, and orders for merchant pig iron, in which 1923 was the peak of a series of three years during which the flow had been growing less uniform.*

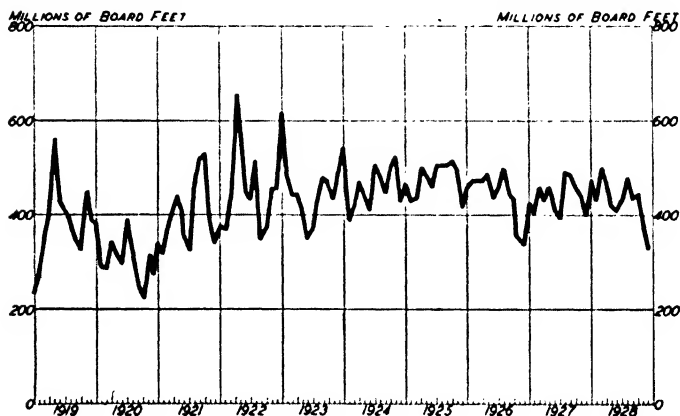
---

Census, and by the Associated Knit Underwear Manufacturers of America; for building contracts awarded (in dollars), published in the F. W. Dodge Corporation *Building Statistics* monthly; and for furniture (in dollars), furnished by one association. In each case, except where otherwise specified, these data are published in the *Survey of Current Business*.

In certain commodities, of which knit underwear is a good example, the trend towards stability is more continuous since 1923 or 1924 than since 1919 or 1920.

*The flow of orders was better stabilized in the years 1925-1928 than in any other period for which data are available. For eight of the thirteen samples considered,*

ORDERS RECEIVED BY MONTHS, SOUTHERN PINE, 1919-1928



the percentage deviations in the years 1925-1928 average lower than the percentage deviations in any preceding year for the same commodity. This conclusion gives support to the widely accepted idea that business has been running on an even keel for the past few years.

Details with regard to the increased uniformity in the period 1925-1928 are disclosed by an examination of the actual movement of the new orders placed each month. As new orders for southern pine furnish a good example,

the monthly data are shown in the chart on page 286. It will be seen that the high peaks of 1919, 1921, 1922, and 1923 disappear in the later years, and a comparatively uniform flow appears. In other words, the one or two annual peaks and valleys of those earlier years give way to three or four small peaks and valleys in each of the later years. The same phenomenon occurred in new orders for knit underwear. The years 1921, 1922, and 1923 and, to some extent, 1924 show high peaks and low valleys, apparently at definite seasons. In the years 1925-1928 these peaks and valleys have virtually disappeared, and a series of smaller ups and downs have succeeded them.

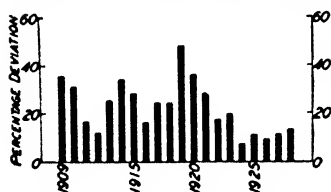
A similar though different type of change was found in the new orders for enameled ware baths and for certain of the steel products. In these cases a fairly definite seasonal movement seems to have taken the place of a swing extending over two or three years. Steel furniture is the only one of the steel products considered which does not show this change.

The flow of orders was often (in seven of the eleven samples showing 1928 data) less uniform in 1928 than in 1927, in fact less uniform than an average of the three preceding years. There is, of course, no possible way to judge whether this indicates that these industries are entering an era of less regular placing of orders or whether this is only a slight step out of the trend toward a more even flow. In three of the seven cases showing 1928 less uniform than 1925-1927 there is a trend toward less uniformity from 1925 or 1926 through 1928.

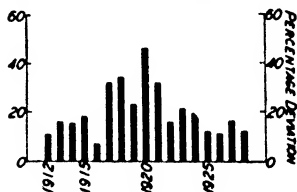
In eight of the twelve products for which 1927 data are available, the flow is less stable in 1927 than in 1926. In general the year 1926 may be said to be a year of no change when compared with 1925. Not only are variations, where they occur, very slight; but for the thirteen products studied, six products show increased stability, five show decreased stability, and two show no change.

**THE FLOW OF ORDERS IN PRE-WAR AND POST-WAR YEARS**  
(Average percentage deviation of monthly orders from the arithmetic mean for the given calendar year)

I. FABRICATED STRUCTURAL STEEL



II. OAK FLOORING



*The flow of order data in two of the industries studied make possible a pre-war and post-war comparison.* (See chart on this page.) The two products concerned are fabricated structural steel, for which the flow of new orders is measured from 1909 through 1928, and oak flooring for which new order data were obtained beginning with 1912. In the period 1909-1919 there seems to be a definite cyclical movement in the regularity with which orders for structural steel were secured. Since 1919 there has been a fairly consistent trend toward greater uniformity, and a greater stability has been

reached in each of the last five years than in any earlier year except 1912. New orders for oak flooring, on the other hand, do not show so definite a cyclical movement. There was a period, 1912-1915, in which the variation, although considerable, was about the same in one year as in another. The year 1916 shows the most uniform flow of the series. From 1917 through 1921 there was very great variation both in the flow of orders within each year, and in the stability in one year as compared with another. Since 1921 the flow has been comparable to the period before 1916, but has been slightly less stable in this later period than in the earlier one.

### III. THE FLOW OF ORDERS TO PARTICULAR COMPANIES

Since such industry figures as we have been studying necessarily conceal the experiences of individual concerns, it is worth while to examine the flow of orders to certain specific companies. Three cases will be used: a blanket manufacturer, a food manufacturer—whose orders for canned pork and beans and for canned spaghetti have been obtained—and a leading steel company.\*

*The individual companies have had varied experiences with the flow of orders, and one company has had different experiences with different products.* The business of a blanket manufacturing company came to it with increasing regularity from 1923 through 1926.

\* In each case the data were furnished by officers of the company who asked that the name of their company be not used.



(See chart on page 291.) A study of the monthly data shows that the seasonal ordering so pronounced in the earlier years had almost disappeared in 1926.

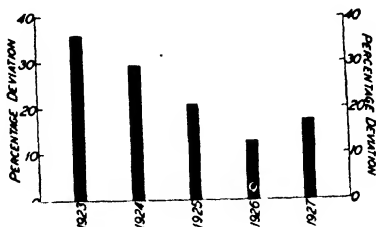
In examining the charts showing the flow of orders received by a single large food manufacturing company, worth noticing is the much greater variation in the orders received for pork and beans than in orders received for spaghetti. (See chart on page 291.) A study of the monthly distribution of orders through each year shows changes in the seasonality of these orders which are surprising when one considers the fact that they are for staple food products. Striking is the uneven flow of this company's orders when compared with those of the manufacturer of blankets, a seasonally consumed product.

The steel manufacturing company studied has received orders in a much more uniform flow during each of the consecutive years 1926, 1927, and 1928 than in any other year of the series which begins in 1913. (See chart on page 291.) While this uniformity was closely approached in 1922 and almost equalled in 1913, it was never before continued for more than one year.

Striking as is the degree of stability for the period 1926-1928, one is inclined to doubt the probability of its continuance for any great length of time. While the flow of orders in 1927 and in 1928 was more stable than in any year before 1926, it was less stable in each of these years than in the year just preceding. Although order flow was most irregular in 1921, it was also very irregular in the years 1914 and 1919.

ORDERS RECEIVED BY A BLANKET MANUFACTURER, 1923-1927

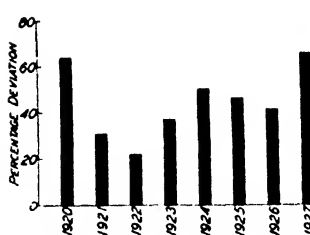
(Average percentage deviation of monthly orders from the arithmetic mean for the given calendar year)



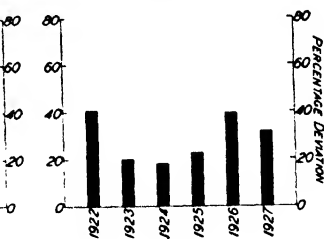
ORDERS RECEIVED BY A FOOD MANUFACTURING COMPANY

(Average percentage deviation of monthly orders from the arithmetic mean for the given calendar year)

I. PORK AND BEANS

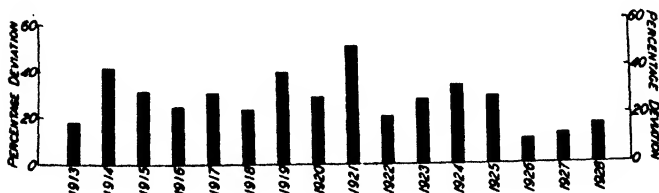


II. SPAGHETTI



ORDERS RECEIVED BY A STEEL MANUFACTURING COMPANY, 1913-1928

(Average percentage deviation of monthly orders from the arithmetic mean for the given calendar year)



A general view of all the data leads clearly to the conclusion that business as represented by the uniformity of the flow of orders through the year has tended towards a greater degree of stability since 1919 and 1920. Such a general conclusion, however, needs certain specific modifications: the trend towards stability was seriously disturbed in 1923 and 1924—apparently by the boom in business—and movement shows great variations from industry to industry and business to business; in general the years 1925, 1926, and 1927 have been years of remarkably even flow, with 1927 somewhat less uniform than 1925 and 1926. The meager evidence that is available suggests that the present stability is comparable to the pre-war situation, but that we have reached in the past three years a greater uniformity of order flow than existed prior to the war. In other words, there is some reason to believe that the change since 1919 and 1920 has been a “back to normalcy” movement in the sense that pre-war conditions were “normal.” But we have, in the uniformity of order distribution, perhaps surpassed in the last few years the condition which existed before the war.

## CHAPTER XVI

### THE FLOW OF GOODS: EARLY STAGES

A second aspect of trade is the flow of goods. Is this phase of trade becoming more stable? The uniformity of the flow of goods is of far more practical significance than the uniformity of the flow of orders, as it reflects much more directly the regularity of employment, the investment of liquid capital, and the utilization of many types of equipment. One might imagine an ideal flow of trade to be one with no deviation whatsoever; one which moved with the same volume every month, week, or day. Such a movement would be in conformity with a steady production, a minimum of stocks, and uniform inventory. But such a uniform movement of goods is by no means ideal in view of the production methods which we actually employ. It may be more economical to move iron ore when the lakes are open than to do so when they are ice-bound, even though this lack of stability involves a cost for storage, a shut-down of production, and a shift of employment. Nor is such an extreme case the only instance in which more may be said against complete stability than for it. Nature makes unduly expensive anything but seasonal production of many types of goods, and where there is seasonal production there are usually found reasons for more or less seasonal shipments. Seasonal consumption also argues for irregular trade movement. Almost every

manufacturer, even if not directly affected by these forces, finds them reflected in the flow of shipments desired by his customers or urged by those from whom he buys. Thus some deviation from a uniform flow may be expected in every industry.

In this chapter attention is given to the flow of goods in comparatively early stages of production and in general in groups of related commodities. In the next chapter the flow on to the consumer is considered. We shall begin by making a very general measurement of the flow of goods through trade and then study the movement in a considerable number of important industries. The method used is the same as that employed in measuring the flow of orders. (For explanation of method, see page 280.)

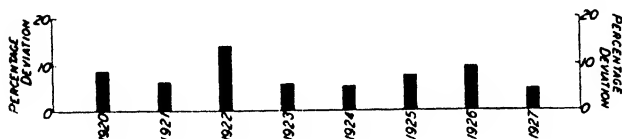
## I. THE FLOW OF GOODS IN TRADE GENERALLY

A general picture of changes in the flow of goods is afforded by a study of changes in the number of tons of freight received for shipment by the railroads. As goods move out of the manufacturer's shipping room, or the wholesaler's warehouse, they go to some transportation agency, most commonly to the railroad. The irregularity of this movement can be measured (as the flow of orders was measured), thus providing a composite view of the stability of the flow of all goods shipped.

*A composite picture of the flow of goods shows considerable variation and little consistent trend during*

*the eight years studied.*<sup>1</sup> (See chart on this page.) Between 1920 and 1927 stability gains, loses, improves, loses, and improves again. In 1927 the situation is at its best; in 1922 it is at its worst. If one had viewed this picture at the end of 1924, he would have been justified in the belief that American trade was being rapidly stabilized; at the end of 1926 he would have felt that irregularity was gaining ground. With 1927 data in the scene, it appears that general conclusions

THE FLOW OF GOODS THROUGHOUT THE UNITED STATES, 1920-1927  
(Measured by tons of revenue freight originating on Class I railways—average percentage deviation of quarterly data from the arithmetic mean for the given calendar year)



must be withheld—at least until studies of particular products have been made. To such studies we may, then, proceed.

Shipment figures representing the flow of goods have been secured from a broad range of industries.<sup>2</sup> A majority of these have been classed into six industry groups; others are considered without grouping; and two are grouped as services.

<sup>1</sup>Data are tons of revenue freight (both carload and less than carload) originating on Class I steam railways, by quarters, as compiled by the Interstate Commerce Commission and published in its *Quarterly Report* on "Freight Commodity Statistics."

<sup>2</sup>Sources of data will be indicated as each industry group is discussed. Carload shipments are those published in the *Quarterly Report* of the Interstate Commerce Commission, "Freight Commodity Statistics of Class I Steam Railways in the United States." All other data are published in the *Survey of Current Business* unless otherwise specified.

## II. IRON AND STEEL

The iron and steel industry group includes iron ore shipments from upper lake ports; shipments of iron originating on Class I steam railways; and shipments of merchant pig iron, steel sheets, steel barrels, fabricated structural steel, and rolled and finished steel products from factories.<sup>a</sup>

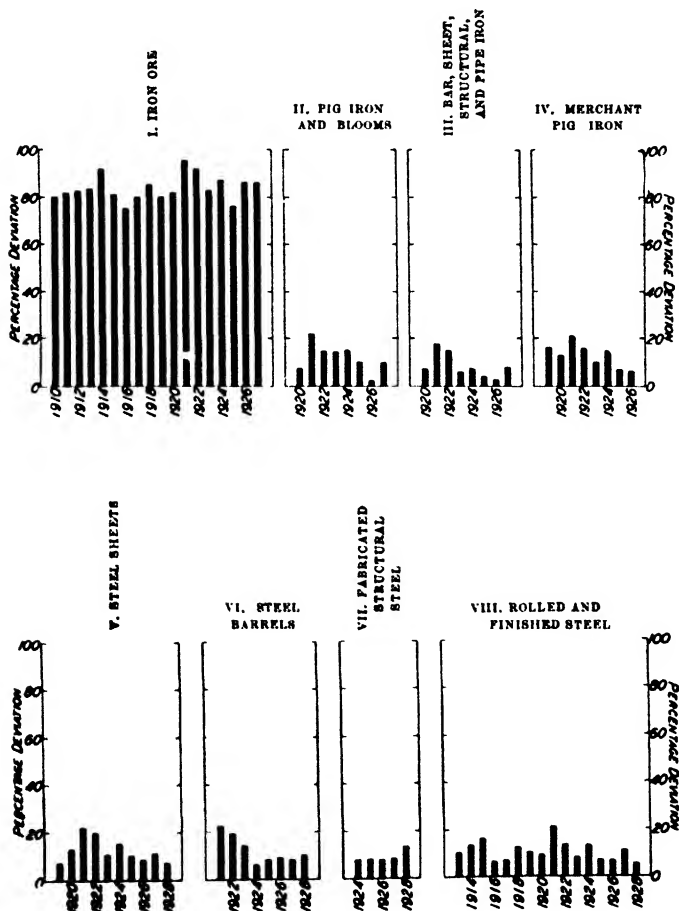
*There has been a new stability in iron and steel shipments since 1922.* (See chart on page 297.) Every iron or steel commodity for which there are data exhibited a more irregular flow of trade in 1921 or in 1922 than it has in any year since. It cannot be said that there has been a steady trend toward greater stability since 1922, nor has the movement been similar among the various commodities. The year 1924 was one of noticeably increased deviation in six of the eight samples.

In four of the six cases where the data precede 1921, strong suspicion is cast on the newness of the "new"

<sup>a</sup> Data are iron ore "shipments from mines" (in tons) representing 85 per cent of the industry as compiled by the Lake Superior Iron Ore Association; tons of carload traffic in pig and bloom iron and in bar, sheet, and structural iron and iron pipe originating on Class I steam railways; shipments of merchant pig iron (in tons) representing about 90 per cent of the production of strictly merchant furnaces, compiled by the Merchant Pig Iron Association, published in the "Metals and Machinery Section" of the *Record Book of Business Statistics*; shipments of almost all independent manufacturers of steel sheets (in tons), compiled by the National Association of Flat Rolled Steel Manufacturers; shipments of steel barrels (in number of barrels) compiled by the U. S. Department of Commerce, Bureau of the Census; shipments of fabricated structural steel (in tons), compiled by the Bridge Builders and Structural Society and by the U. S. Department of Commerce, Bureau of the Census; and shipments of rolled and finished steel products by one large steel manufacturing company.

## THE FLOW OF IRON AND STEEL SHIPMENTS

(Average percentage deviation of monthly or quarterly shipments from the arithmetic mean for the given calendar year)





stability. Indeed, for iron ore, where the data begin in 1910, there is no significant change from the years which precede to those which follow 1921 and 1922.<sup>4</sup> Even in the case of rolled and finished steel products, the period from 1913 to 1920 shows only slightly greater irregularity of monthly movement than does the period 1922 to 1928.

### III. NON-FERROUS METALS

Refined copper, tin, and zinc ore are the three non-ferrous metals represented by samples.<sup>5</sup> Fortunately, data for tin deliveries and zinc ore shipments were obtainable for a series of 20 years. Refined copper data cover nine years beginning with 1920.

*In each sample of the non-ferrous metals there has been an improved stability during a series of recent years.* (See chart on page 299.) At first glance the chart gives an impression of downward trend, which is quite justified in the case of refined copper but has little, if any, justification in the case of tin. The point at which this apparent trend toward greater stabilization begins, differs for the three industries. The year of

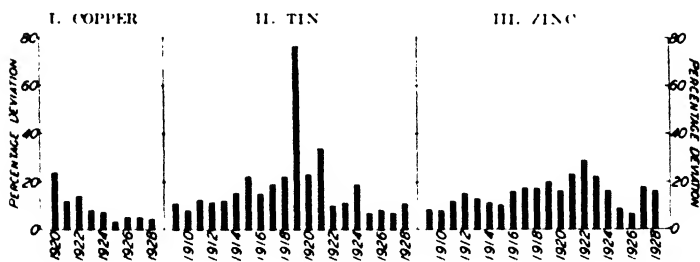
<sup>4</sup> The year 1914, a depression year, is an exception. It must be remembered that iron ore shipments are forcibly regulated by natural conditions regardless of trade wishes and requirements, and therefore do not reflect trade practices as well as do the more highly fabricated samples.

<sup>5</sup> Data are tin deliveries (in tons) from port warehouses in New York, compiled by the New York Metal Exchange; zinc ore shipments (in tons) from Joplin District mines, compiled by the *Joplin Globe*; and refined copper shipments (in tons) from twelve refineries in North and South America, furnished by the American Bureau of Metal Statistics.

greatest deviation was 1919 for tin; 1920 for refined copper; and 1922 for zinc ore shipments. Zinc ore shipments became increasingly more irregular from 1915 through 1922, with the exception of a single year. A degree of stabilization unequalled in any earlier year was attained in 1926. Nevertheless, the evidence does not justify the conclusion that zinc ore shipments have arrived at a new degree of stability. Indeed, in 1927

#### THE FLOW OF SHIPMENTS OF NON-FERROUS METALS

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



and in 1928 the deviations were greater than the average for the whole period. Tin deliveries were more stable in 1925 and in 1927 than in any earlier years. In fact, the continued uniformity of tin movements suggests that possibly a new era has been reached in handling this metal. The uniformity of flow from 1909 to 1914 keeps one from being too certain of this conclusion, however. The improving stability of refined copper movements suggests the same conclusion, though no comparison with pre-war data is possible.

## IV. TEXTILES

The textile industry is represented by a variety of samples, which reflect conditions in various types of textile businesses handling the product at various stages of fabrication.\* Receipts of domestic raw wool at Boston furnish a picture of the flow of that commodity from local points to the most important wool market in the United States. Data on raw cotton marketings by farmers make it possible to observe the way in which that commodity moves from farms for a long series of years. Shipments of raw silk from warehouses show the flow of this material to mills. Manufactured goods are represented by shipments from factories of finished cotton goods, work clothing, knit underwear, and hosiery. To these are added the shipments of a single manufacturer of blankets.'

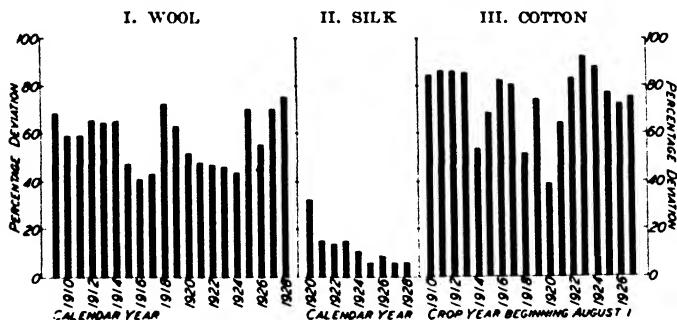
\* It has seemed advantageous to include in this group such materials as raw wool, raw cotton, and raw silk even though they are not, strictly speaking, textiles.

' Data are receipts of raw wool at Boston (in pounds) representing about one-half of the domestic wool clip, compiled by the Boston Chamber of Commerce and the Boston Grain and Flour Exchange; the marketings of raw cotton by farmers, compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, from a moderate number of reports to inquiries sent to farmers July 1, of each year; movement of raw silk from warehouses in New York City to mills (in bales), compiled by the Silk Association of America; shipments of finished cotton goods (in cases) covering work done outside of regular textile mills, compiled by the National Association of Finishers of Cotton Fabrics; shipments of work clothing (in number of garments) from 153 establishments, and shipments of hosiery (in number of pairs) representing about 44 per cent of the industry, both compiled by the U. S. Department of Commerce, Bureau of the Census; shipments of knit underwear (in number of garments) representing about 61 per cent of the industry compiled by the U. S. Department of Commerce, Bureau of the Census, and by the Associated Knit Underwear Manufacturers of America; and shipments of blankets (in number of pieces) furnished by one company.

*Variations in the flow of raw wool, raw cotton, and raw silk are not consistent.* (See chart on this page.) Both raw wool and raw cotton show considerable variation between different years of the period of two decades for which data are available. There is a series of years between 1920-21 and 1923-24 when cotton marketing becomes steadily more irregular.\* During this period, in fact from 1918 to 1924, receipts of wool have been stead-

THE FLOW OF SHIPMENTS OF RAW WOOL, RAW COTTON, AND  
RAW SILK

(Average percentage deviation of monthly shipments from the arithmetic mean for the given year)



ily increasing in stability. Beginning in 1918 there came a long series of years in which wool was sent to market with increasing uniformity throughout the year. That trend toward greater stability was sharply upset in 1925 and was only partially regained in 1926, while in 1927 and 1928 the movement was the most irregular of any two consecutive years in the series. Cotton, on the other

\* Deviations of cotton marketings were calculated for the crop year beginning August 1.

hand, shows in the years following 1923-24 a tendency toward somewhat less seasonal shipments, though seasonality increased slightly in 1927-28 as compared with the year just preceding. Prior to 1914 the flow of shipments of both raw cotton and raw wool varied very little from year to year. The deviations for both commodities were higher in those years than they have been for many succeeding years, and averaged higher for cotton than they have for any year since, except 1923-24 and 1924-25.

A study of shipments by months was made to discover how shipments were spread through the years of low deviation. In the year 1920-21, for example, we find comparatively low shipments of cotton immediately following the harvest and relatively high shipments during the following spring. Indeed, in March, April, and May, shipments were steadily increasing, whereas they are customarily declining rapidly during those months.

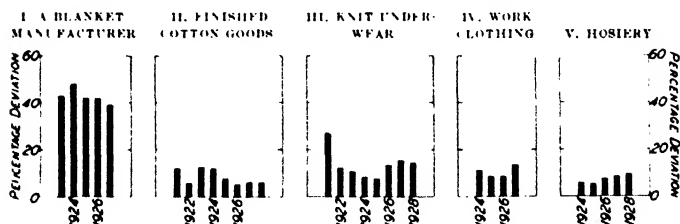
Sweeping statements on the stability of flow of raw cotton and raw wool are not justified. For these commodities one may only conclude in general that, while there are many years of improved stability, a steady trend is not discernible, and the variation from year to year is in many cases great.

Shipments of raw silk to mills show a steady trend toward greater stability from 1920 through 1928. There is a slight exception to the completeness of the trend in the last two years, as in 1926 an unusual drop of shipments in the spring caused considerable irregularity in the year's flow. The degree of stability

attained in 1925 was, however, almost regained in 1927 and 1928. This movement of raw silk strongly suggests a greater evenness of purchase and production by mills using the material.

*The weight of evidence shows a tendency toward greater instability in shipments of textile manufactures since 1925.\** (See chart on this page.) In the four textile industries examined, two show increasing variations in the flow of goods in 1926, 1927, and 1928.

THE FLOW OF SHIPMENTS OF TEXTILE MANUFACTURES  
(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)

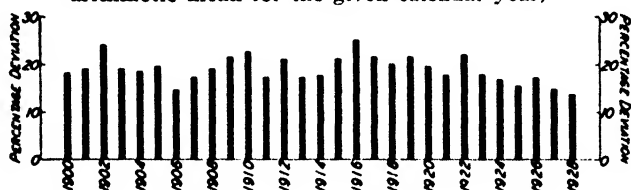


In finished cotton goods and in knit underwear, while there was increased instability in 1927, in 1928 shipments were again more stable. In every instance there is evidence of improvement in the stability of trade for some years preceding 1926. In finished cotton goods the improvement was steady from 1923 through 1926; in knit underwear, from 1921 to 1925. The data for work clothing and hosiery make it possible to determine only that there was an improvement from 1924 to 1925.

\* As may be seen by the chart on this page, however, the shipments of one blanket manufacturer steadily increased in regularity from 1924 to 1927.

A prevalent notion is discredited by a study of the monthly shipments of hosiery. There is an accepted idea that seasons for hosiery have been practically eliminated during the past year or two. The flow of this product was most uniform in 1925, and the detailed data show that in that year there was far less seasonal movement than in the year preceding or in the years which have followed. Hosiery in 1926, 1927 and 1928, in spite of the increasing number of styles and in spite of the improved methods of manufacturers' control in

THE FLOW OF SHIPMENTS OF CATTLE AND CALVES, 1900-1928  
(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



that industry (see page 412), became a product of greater seasonal shipment than it had been in the two years preceding.

## V. FOOD PRODUCTS

Food products are represented by some 23 samples which may readily be classified into several groups. The flow of food products through the channels of trade is represented by the receipts of cattle and calves at four principal markets, the apparent consumption of pork products and of beef products, the meat shipments of packers to their branches, the carload shipments of

fresh meats and of other packing house products, wheat shipments from primary markets, carload shipments of flour and meal, rice receipts at mills, fluid milk receipts in New York, receipts of poultry at four principal markets, receipts of eggs at five principal markets, apparent consumption of butter and of cheese, shipments of refined sugar from refineries, carload shipments of salt; carload shipments of all kinds of canned goods, and sales of six classes of canned food products.<sup>10</sup>

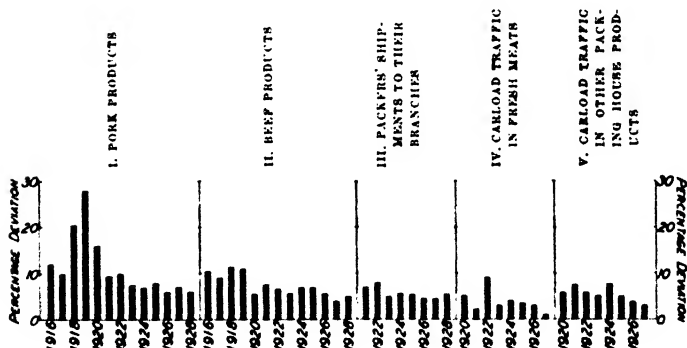
<sup>10</sup> Data are apparent consumption (in pounds) of pork products and of beef products, of butter, and of cheese; receipts at Boston, New York, Philadelphia, and Chicago (in pounds) of poultry; and receipts at Boston, New York, Philadelphia, Chicago, and San Francisco (in cases) of eggs—all compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics, and published in the U. S. Department of Agriculture *Yearbook*; tons of carload shipments of fresh meats, of other packing house products, of flour and meal, of salt, and of all kinds of canned goods originating on Class I steam railways; receipts of cattle and calves at East St. Louis, Chicago, Omaha, and Kansas city as published by the U. S. Department of Agriculture in "Statistics of Cattle, Calves, Beef, Veal, Hides, and Skins, *Statistical Bulletin*, No. 20, p. 23, 1900-1925; and in *Crops and Markets*, 1926-1928; meat shipments of packers to their branches ("wholesale distribution of meats," dollar volume relatives, unadjusted) compiled by the Federal Reserve Board, Division of Research and Statistics; wheat shipments from primary markets (in bushels), U. S. Department of Agriculture figures from *Bulletin* No. 982, p. 158, 1910-1919, from *Yearbooks* (11 markets), 1920-1925, and furnished by Mr. John Wilson of the Bureau of Agricultural Economics, 1926-1927; receipts of rice at mills (Southern paddy, all except California, barrels or sacks of 162 pounds), compiled by the Rice Millers' Association; raw milk receipts in greater New York (in quarts) from *The Milk Reporter*; shipments of refined sugar from refineries in Savannah and New Orleans (in tons), compiled by the Federal Reserve Bank of Atlanta; spot sales of canned foods as reported in the questionnaire sent to members of the National Cannery Association; total shipments of salmon from both the U. S. and Alaska as published in the *Survey of Current Business*; and sales reported by an individual food manufacturing company.



*Shipments of cattle and calves show, since 1922, a greater stability of flow than that attained in any similar period of years since 1900. (See chart on page 304.)* Not only has there been unusually uniform shipping through each of these years; but, with the exception of 1926, each year shows an improvement over the preceding year. The uniformity of shipments in 1928 was

#### THE FLOW OF SHIPMENTS OF MEAT AND OTHER PACKING HOUSE PRODUCTS

(Average percentage deviation of monthly or quarterly shipments from the arithmetic mean for the given calendar year)

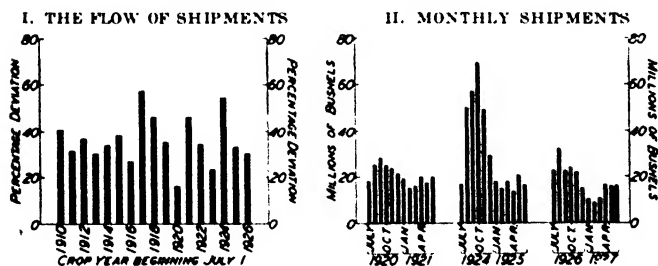


greater than in any other year of the 29-year series. The change in stability from year to year seems to follow a rather definite cycle of from six to eight years. Deviations are high in 1902, in 1909 and 1910, in 1916, and in 1922. The variations in the several cyclical movements are easily seen in the chart but attention should be called to the almost continuous trend toward greater stability following 1916, a trend which is only significantly broken in 1922.

*The flow of pork products and of beef products out of cold storage for the past eight or nine years has been considerably more stable than in the four or five years just preceding. (See chart on page 306.) In both 1918 and 1919 the movement of these two products was much more irregular than in any other year observed; so that if we make the comparison of recent years with those years, the improvement is striking. Even when a comparison is made with 1916 and 1917, however, there is*

#### SHIPMENTS OF WHEAT FROM PRIMARY MARKETS

(Average percentage deviation of monthly shipments from the arithmetic mean for the given crop year, and shipments made during indicated months)



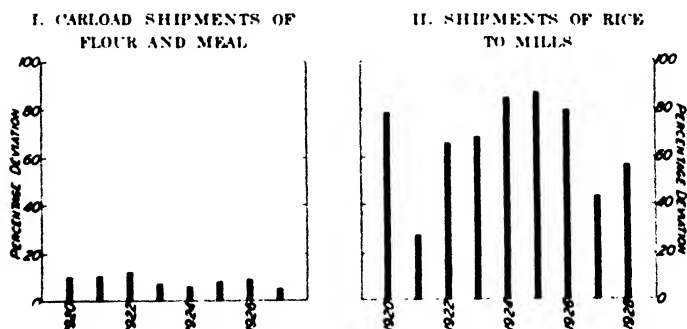
no doubt of a much greater regularity in meat consumption. For pork products, 1926 is the year of most stable flow of shipments; for beef products, 1927 showed an improvement over every other year."

"The improving regularity of flow in the meat trade is shown by other evidence as well. Whether measured by shipments of packers to their branches or by carload shipments of fresh meats originating on Class I steam railways, there is shown a trend toward greater stability following 1922. In the case of carload shipments of packing house products other than fresh meats there is a slight trend toward greater stability from 1921 to 1923. Following a greater irregularity in 1924 there is an even more pronounced trend towards uniformity from 1924 to 1927.

*The stability of shipments of wheat from primary markets has been increasing since the crop year 1924-25. (See chart on page 307.) Similar downward trends may be observed from 1917-18 to 1920-21, and from 1921-22 to 1923-24. Prior to the crop year 1917-18 wheat seems to have moved to the primary markets with about the same regularity year after year. The crop years 1917-18 and 1924-25 are those of greatest in-*

### THE FLOW OF CEREALS SHIPMENTS

(Average percentage deviation of monthly or quarterly shipments from the arithmetic mean for the given calendar year)



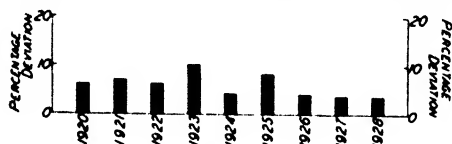
stability. The striking differences in month-to-month shipments of this commodity in different years may also be observed in the chart. The chart shows the year of greatest stability, 1920-1921, a year of great stability, 1924-1925, and the most recent year studied, 1926-1927.

Carload shipments of flour and meal contrast with wheat shipments in being increasingly irregular from

1924 to 1926. (See chart on page 308.) They were more regular in 1927, however, than in any other year for which data are available. The year showing least stability is 1922, with 1921 not much better.

*Shipments of rice to mills show a much greater seasonal movement than either of the products discussed above.* The contrast suggested is particularly interesting with reference to wheat, which, like rice, is a seasonally produced but continuously consumed cereal. Since 1925 the stability of shipments has improved noticeably, but from 1921 through 1925 each year showed an increased instability.

THE FLOW OF FLUID MILK SHIPMENTS TO NEW YORK, 1920-1928  
(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)

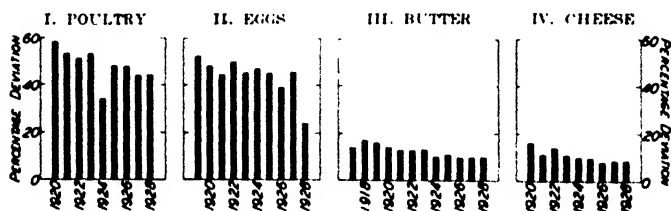


The year 1921 shows by far the least deviation from a uniform flow. An examination of the monthly shipments shows the reason for such slight deviation; the typical seasonal movement was virtually eliminated. During that year almost as much rice was shipped to mills in May as in October, and more than in November. In more typical years May shipments are less than a tenth of the November shipments and are sometimes almost lacking. The improvement of 1927, while less marked than that of 1921, came from maintaining shipments through the spring and summer.

*The flow of fluid milk to New York is becoming more stable.* (See chart on page 309.) The year 1925 is out of line, but the other four years following 1923 show an increasing uniformity of flow, each showing greater uniformity than that attained in any of the earlier years observed. A study of the detailed data shows that in 1923 and 1925 there was some unusual occurrence causing extremely high consumption in certain months.

THE FLOW OF SHIPMENTS OF POULTRY, EGGS, BUTTER, CHEESE OUT OF COLD STORAGE

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



Such a study shows also that the definitely seasonal movement in the years 1920, 1921, and 1922 is greatly smoothed out in the last three years of the series.

*Shipments of the various products generally included in "the butter and egg trade" show increasing stability.* (See chart on this page.) Comparing the trend for poultry with that for eggs, the improvement is much more noticeable in the former. For poultry the deviation in 1928 is 43.5 per cent as compared with a deviation of 58.5 per cent in 1920. The most stable year of the series for poultry is 1924. Deviations in egg shipments show a series of downward trends, each trend

beginning a little lower than the one preceding. Shipments were strikingly more stable in 1928 than in any earlier year.

In recent years both butter and cheese are being consumed more regularly through the year, with a resulting stability in trade movement. The change in consumption from a sharply seasonal one to a more even one is particularly noticeable in the case of butter. Butter has been moving into consumption with a constantly greater regularity in every year since 1918, with slight exceptions between 1924 and 1925 and between 1927 and 1928. The deviation in 1927 is only a little more than half as great as it was in 1918.

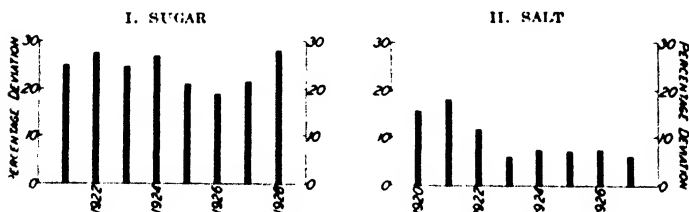
Cheese is also becoming to a much greater extent an article of year round diet. The average deviation from uniform consumption, in 1926, was less than half what it was in 1920. This was the most uniform consumption achieved in a series of years in which the trend was toward more stability. Though the use of this commodity was slightly less regular in 1927 and in 1928 than in 1926, it was more regular in each of these years than in any year before 1926. A study of the detailed monthly data upon which these deviations are based shows that in the earlier years of the series there was a high peak of consumption in May and a second high point in September or October, with low consumption in July and December. Similar peaks and valleys are still observable, but are much less sharply marked during the past few years than in the earlier ones.

*A study of shipments both of refined sugar and of salt gives some added evidence of increased stabilization in the food trades. (See chart on this page.) In 1925, 1926, and 1927 there was a considerably more uniform flow of shipments of sugar from refineries than during the four years preceding. In 1928, however, there was greater irregularity than in any earlier year.*

Carload shipments of salt attained a much greater uniformity after 1922 than they had in the two years preceding. The change following 1922 was not a con-

#### THE FLOW OF SHIPMENTS OF SUGAR AND SALT

(Average percentage deviation of monthly or quarterly shipments from the arithmetic mean for the given calendar year)



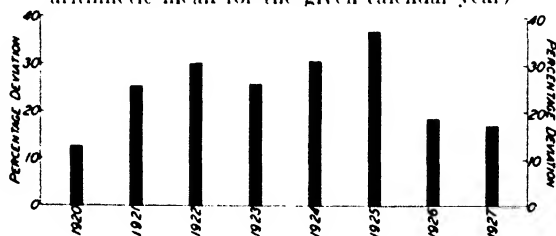
sistent trend. The flow of shipments was as stable in 1923 as in 1927, though somewhat less stable in the intervening years. It is interesting to observe the wide fluctuations in the flow of this product, which has been the classic example of non-elastic demand and which because of this alleged characteristic might be supposed to flow through trade with little variation from year to year.

*While no single statement adequately describes all the trends of shipments in canned foods, there is a definite tendency toward stability. If we examine carload*

shipments of all kinds of canned goods, we find rapidly increasing stability since 1925. (See chart on this page.) Shipments were more stable in 1927 than in any year since 1920. The period before 1925 shows an almost steady increase in irregularity. This general view, however, is not sufficient evidence of the movement of canners' output. Including as it does only carloads, the increasing number of small shipments is not in the picture. Moreover, carload shipments necessarily include such shipments from wholesalers.

THE FLOW OF CARLOAD SHIPMENTS OF ALL KINDS OF CANNED GOODS,  
1920-1927

(Average percentage deviation of quarterly shipments from the arithmetic mean for the given calendar year)



While a more detailed study of six different classes of canned foods shows certain uniformities in the shipments of canned corn, peas, tomatoes, fruit, and salmon, and of the manufactured products examined, there are also significant differences.<sup>11</sup>

<sup>11</sup>The data used for all of these commodities, excepting the manufactured food products, are the spot sales of canners. They could, therefore, with propriety, be used to show either the flow of goods or the flow of orders, exclusive of futures. They must not be interpreted as showing all shipments, as shipments to follow future orders are not included. The data were obtained from members of the National Canners Association.



Spot sales of canned corn have been considerably more evenly distributed since 1920 than before. (See chart on page 315.) The evidence shows this to be true whether we consider the history of all the companies reporting or that of selected groups of companies. The group including all reporting companies shows great instability in the period 1914 to 1917. Monthly shipments for these years show large sales during the fall, usually at a peak in September or October, with no sales, or practically none, from January to July or August. From 1917 to 1922 spot sales show a continually increasing stability. In fact, 1922 shows the least deviation of any year of the 14 years considered. A study of the monthly shipments of these years shows that the marked seasonal movement had largely disappeared. Spot sales were being made in every month, and for some of these years a large quantity of goods was sold in each month from January to July. Spot sales appeared to be definitely on a hand-to-mouth basis. After 1922 the seasonal movement became increasingly more pronounced, resulting in greater instability of trade in 1925 than in any year from 1921 to 1927. In 1926 and 1927 shipments were again relatively stable.

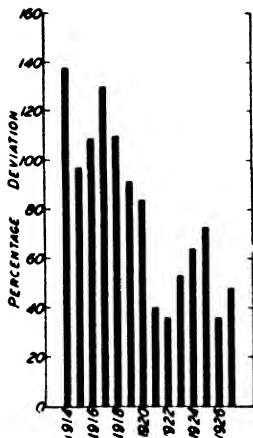
A study of a four-company group and a seven-company group shows similar conditions from year to year. The four-company group, however, showed little change in the period 1923 to 1927. Sales of these later years, though more stable than before 1921, were considerably less regular than in either 1921 or 1922.

A study of one very large corn canning company (Company 42), whose history goes back through 1911,

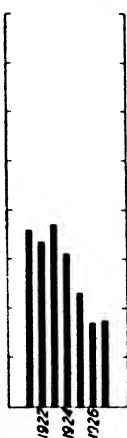
## THE FLOW OF SHIPMENTS OF CANNED VEGETABLES

(Average percentage deviation of monthly spot sales from the arithmetic mean for the given calendar year)

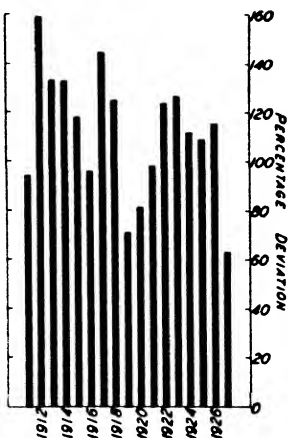
I. ALL REPORTING CORN CANNERS



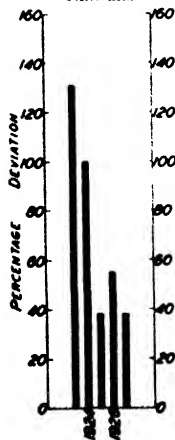
II. ALL REPORTING PEA CANNERS



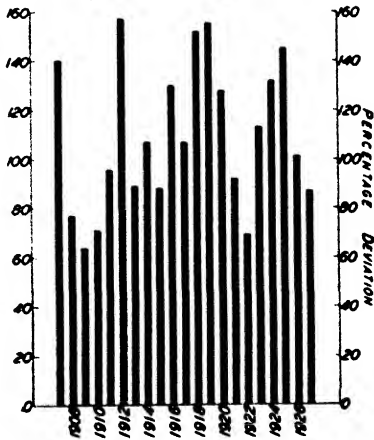
III. PEAS—COMPANY 42



IV. ALL REPORTING TOMATO CANNERS



V. TOMATOES—COMPANY 35



shows that prior to 1921 marked seasonality was the customary thing in spot sales. Indeed, for many years, for this company the entire season for spot selling was concentrated in one or two months in the fall. The change in this company's experience is very much like that seen in the all company chart, seasonality being greatly modified in the post-depression years. Trade has been somewhat less regular in 1926 and 1927. In both of these years, however, the peak of seasonal sales came in the spring rather than in the customary fall months. This company's history shows a period during 1915 and the first half of 1916 which is very much like the years 1921 to 1924. Spot sales were spread through the year, being higher indeed in March, 1916, than in any of the summer or fall months of 1915, and being higher in February and April of 1915 than in any of the fall months of 1914.

The spot sales of canned peas have become more evenly distributed through the year since 1923. (See chart on page 315.) Groups of five companies reporting since 1923 and of all companies reporting since 1921 show a similar improvement. In both cases 1927 shows slightly less stability than 1926. An examination of the shipments by months shows that the extensive sales made typically in July and August in earlier years have disappeared in large measure beginning with 1925. Taking the experience of all companies together, the evidence shows that the heaviest spot sales have been shifting from the fall to the spring. The spot sales of peas by Company 42 show quite different year-to-year changes. The sales of 1927 are more stable than those

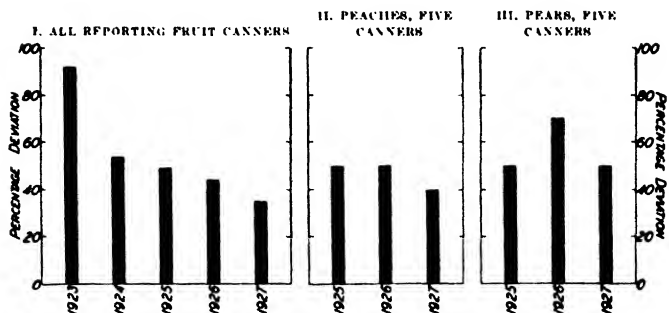
of any other year, but the five preceding years show no particular improvement when compared to an average of the eleven years 1911-1921. Taking the whole 17 years into consideration, there is evidence of at least two periods when a trend toward uniformity of sales was under way. One of these ended in 1916 and the other in 1919 and 1920.

Seasonality disappeared in spot sales of canned tomatoes in 1927. (See chart on page 315.) The low deviation reflects the fact that sales ran smoothly through the year. From 1925 on, the variations are slight in the group including all companies. The three-company group considered did not attain the new stability until 1927.

The spot sales of tomato canning Company 35, which reports for 21 years beginning with 1907, show quite different year-to-year variations than do the sales of groups of companies. The most interesting fact revealed by this company's history is that the conditions discussed above are by no means limited to the last six or seven years. This company has passed through several cycles with respect to its spot sales, with high points in 1907, 1912, 1918 and 1919, and 1925. But the longest series of years of noticeable stability is the series from 1908 through 1911. The year 1909 shows the lowest deviation of any year studied. A study of the monthly sales shows that this situation two decades ago was exactly like the one discussed above for recent years. Heavy sales of the fall months were in those years shifted and in considerable measure shifted into the spring.

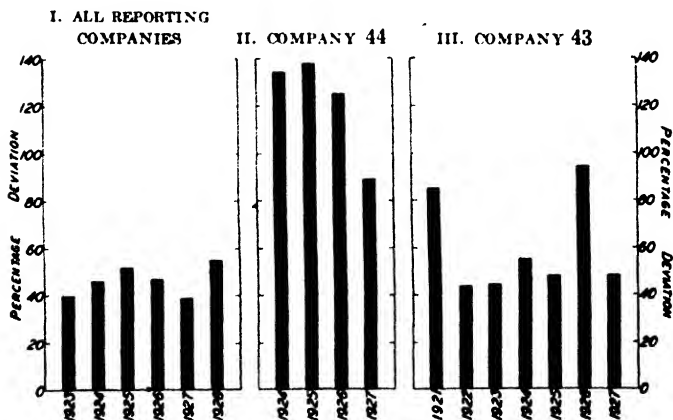
## THE FLOW OF SHIPMENTS OF CANNED FRUIT

(Average percentage deviation of monthly spot sales from the arithmetic mean for the given calendar year)



## THE FLOW OF SHIPMENTS OF CANNED SALMON

(Average percentage deviation of monthly shipments or spot sales from the arithmetic mean for the given calendar year)



A study of the detailed data also shows that since 1919, with the exception of 1924, the heavy spot buying has been done in the spring months, which is a complete shift from the high peaks of spot selling in the fall in earlier years. Thus, even though the seasonal movement was rather marked for this company from 1923 to 1925, as is shown by the comparatively high deviations, the season was then a spring rather than a fall season.

Sales of canned fruit have been steadily increasing in stability since 1923." (See chart on page 318.) That the trend is not equally marked in every type of canned fruit sales is shown by the record of five peach canning companies and five pear canning companies for a series of three years respectively. The year 1927, however, in each of these cases, as in the case of all fruit combined, shows the most stable business.

Canned salmon packers found business increasingly stable through the period 1925-1927 but less stable in 1928 than in any earlier year studied." (See chart on page 318.) In 1927 the uniformity of shipments was only slightly better than it had been in 1923.

The spot sales of two large salmon canning companies show no striking resemblance to the movement of total shipments. In both cases 1927 is a year of more stable

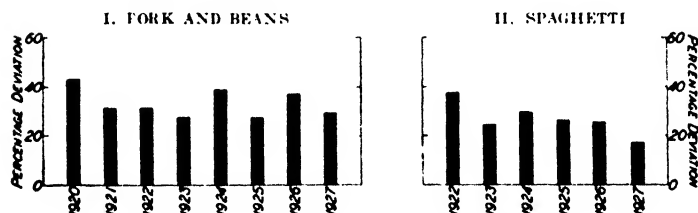
<sup>13</sup> This includes eleven companies, of which five can peaches, seven pears, two pineapples, two cherries, and two berries.

<sup>14</sup> These data, representing practically the entire pack of United States and Alaska, cover all shipments for the year rather than spot sales as is the case in the discussions above.

sales than 1926. One of these companies (Company 43) shows comparatively little variation from 1922 through 1927, except for an extreme change in 1926. A study of the monthly shipments of this company in 1926 shows that the cause was a lack of the spring business which had been customary during the preceding years. Buying was apparently postponed, as its fall sales were unusually high.

#### SHIPMENTS FROM ONE CANNED-FOOD MANUFACTURER

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



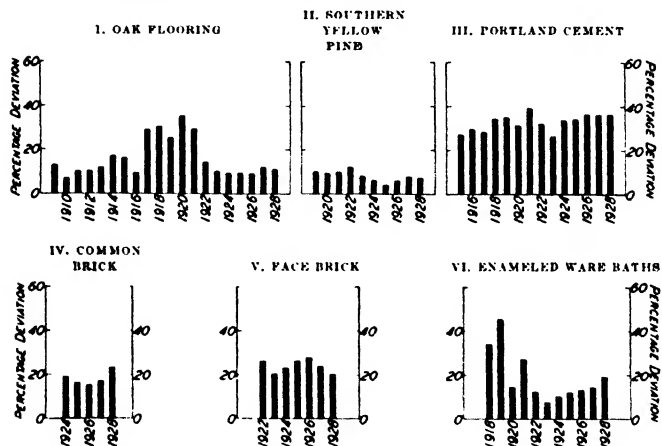
Of two products sold by a canned food manufacturer, one shows a trend toward stability of flow. (See chart on this page.) The other product shows variation but no trend. Specifically, this manufacturer, or his customers, are making purchase and sale of canned spaghetti an increasingly continuous rather than seasonal matter. This is not true for canned pork and beans sold by the same manufacturer. The year of most stable sales of spaghetti by this company was 1927. Stability in the sale of pork and beans was at its best in 1925, a record which was closely approached in 1923.

## VI. BUILDING MATERIALS

It has been possible to study the flow of shipments of building materials from five samples of the building industry: oak flooring, southern pine, Portland cement, common brick, face brick, enameled ware baths.<sup>18</sup>

## THE FLOW OF SHIPMENTS OF BUILDING MATERIALS

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



*For a period of several years preceding 1929 the flow of shipments in the building trade was becoming more*

<sup>18</sup> Data are shipments of oak flooring (in board feet), representing about 90 per cent of the industry, as reported by the Oak Flooring Manufacturers' Association; of southern pine (in board feet), compiled by the Southern Pine Association; of Portland cement (in barrels), complete reports compiled by the U. S. Department of Commerce, Bureau of Mines; of common brick (in number of bricks), representing 30 per cent of the industry, compiled by the Common Brick Manufacturers' Association of America; of face brick (in number of bricks), the reports of 70 firms, compiled by the American Face Brick Association; of enameled ware baths (number of pieces), complete reports compiled by the U. S. Department of Commerce, Bureau of the Census.



*irregular.* (See chart on page 321.) This increasing irregularity was found to some extent in every sample studied with the exception of face brick. The period at which this tendency began varied somewhat with the commodity. Enameled ware baths show an unbroken trend from 1923 through 1928; common brick only from 1926 through 1928. Prior to this movement for decreasing regularity there had been a significant improvement for a number of years in every commodity which data make it possible to examine.

There are two commodities for which there is an opportunity to study the fluctuations before our entrance into the war. In the case of Portland cement data begin with 1915. Trade was more regular in each of the years 1915, 1916, and 1917 than in any of the eleven years which followed, except in 1923. For oak flooring it is possible to study trade movements for 20 years. As the chart shows clearly enough, the pre-war period is entirely comparable to the period following 1921. There is a series of five years from 1917 to 1921 which is distinctly "abnormal." It would seem difficult to find a case to which the phrase "a return to normalcy," following the depression of 1921, could be more aptly applied.

Certain relationships between changes of the regularity of the flow of trade and the increase and decrease of the volume of trade are worth considering. In general, in the building industry there was a period of expansion, as judged by increase of shipments, which was most noticeable between the beginning of 1921 and

the end of 1925. In some cases the change in volume lasted a year longer or began slightly earlier or later. In the case of Portland cement the expansion of trade continued steadily through 1928. This, however, might be expected regardless of the building industry, as road building increased through those years. For a number of the commodities studied, the improvement in the stabilization of trade following 1921 came at the same time that volume was increasing. This was noticeably true in the case of Southern pine, of oak flooring, and of common brick. More instability appeared as shipments began to decrease. Examples are: enameled ware baths, oak flooring, and southern pine. The conclusion would not be justified, however, that trade becomes more steady in building materials during eras of expansion, because for face brick and Portland cement the flow of trade became more irregular during a considerable series of years, while volume was expanding rapidly.

## VII. BITUMINOUS COAL

The variations in the regularity of shipments of bituminous coal from mines for a series of 24 years, beginning with 1905, may be seen in the chart on page 324.\*

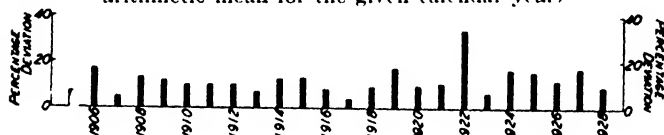
*Shipments of bituminous coal were more seasonal in the four years following 1923 than for any other series*

\*Shipments and production are practically identical, although the data are total shipments from mines (in tons) as compiled by the U. S. Department of Commerce, Bureau of Mines. Early data were taken from Hardy and Cox, *Forecasting Business Conditions*, p. 317.

*of four years in the record.* (This statement disregards the record of 1922.) In the long series, certain years, particularly 1919 and 1922, show the greatest variation from regularity of production. These years, however, were marked by strikes, that of 1922 being of particular severity. From 1908 until the outbreak of the war in Europe there was an almost continuous trend toward greater stability in bituminous coal output. Although the depression of 1914 and 1915 caused some disruption in the regularity of the industry, improvement followed, so that 1917 was the most regular year of the series.

#### THE FLOW OF SHIPMENTS OF BITUMINOUS COAL, 1905-1928

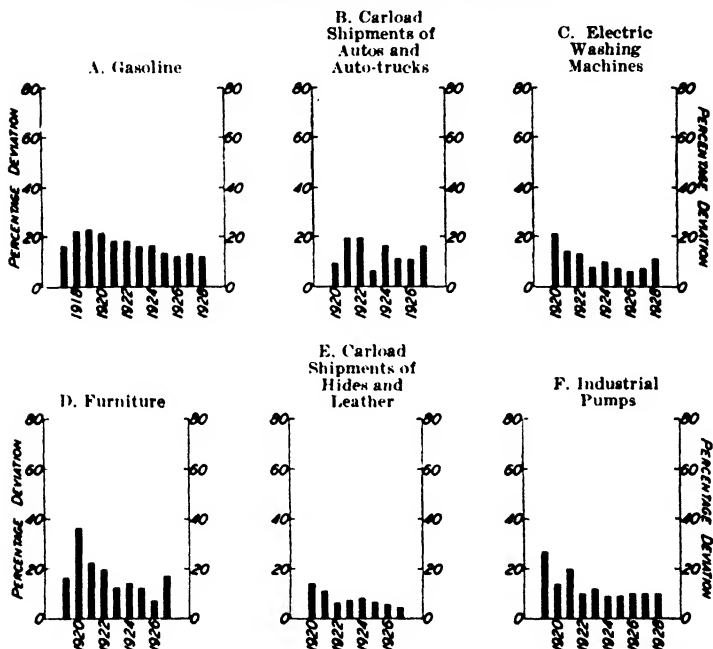
(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



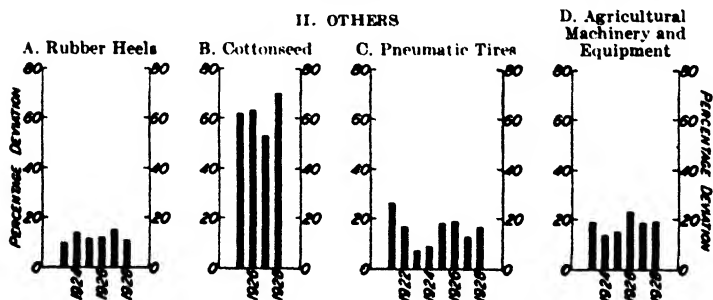
The increased instability since 1923 (which was a year of remarkably uniform production) seems to be due solely to seasonal influence. The three years 1924-1926 show almost identical percentages of output in corresponding months. In 1927, however, as an analysis of monthly data shows, something different occurred. The output in the early months of the year was higher than for several years, possibly because of strike prospects. The usual drop occurred in the summer, but there was no increase in output in the autumn corresponding to that which customarily occurred before 1927. The shipments were low in the spring of 1928, corresponding to the fall of 1927. There was an improvement in the

**THE FLOW OF SHIPMENTS OF UNCLASSIFIED MANUFACTURES**  
 (Average percentage deviation of monthly or quarterly shipments  
 from the arithmetic mean for the given calendar year)

**I. THOSE SHOWING INCREASED STABILITY**



**II. OTHERS**



fall of 1928, but the season was not as pronounced as in several earlier years.

### VIII. TEN UNCLASSIFIED MANUFACTURES

The trade movement of gasoline, pneumatic tires, automobiles and auto-trucks, agricultural machinery, electric washing machines, industrial pumps, furniture, rubber heels, hides and leather, and cottonseed, all of which are important products, are discussed in this miscellaneous group."

*An improved stability is noticeable in a majority of these industries.* (See chart on page 325.) Of none is this more true than of gasoline, where from 1919 through 1928 the trend is steadily toward regularity. A slightly greater irregularity occurred in 1927. During all of this period the consumption of gasoline has been increasing rapidly, expanding from a consumption of

"Data are shipments of gasoline from refineries ("consumption," in barrels), compiled by the U. S. Department of Commerce, Bureau of Mines, published (1917-1923) in *Standard Daily Trade Service* of January 21, 1924; domestic shipments of pneumatic tires (in number of tires) representing about 75 per cent of the industry, compiled by the Rubber Association of America; carload shipments of hides and leather (in tons) originating on Class I steam railways; shipments of agricultural machinery and equipment, representing 80 per cent of the industry, compiled by the Federal Reserve Bank of Chicago; shipments of electric washing machines (in number of machines), compiled by the American Washing Machine Association; shipments of steam, power, and centrifugal pumps (in dollars), representing about two-thirds of the industry, compiled by the Hydraulic Society; sales of furniture, furnished by one furniture manufacturers' association; shipments of rubber heels to domestic shoe manufacturers (in pairs) representing about 70 per cent of the industry, reported by the Rubber Association of America; and cottonseed consumption ("crush") by mills (in tons), representing the entire industry as compiled by the U. S. Department of Commerce, Bureau of the Census.

about 82 million barrels in 1919 to over 325 million in 1928. The improved stability is easier to account for in this than in many industries, being undoubtedly due to a tendency to use automobiles both for pleasure and business purposes more regularly through the year. Quarterly carload shipments of automobiles and auto-trucks increased in stability from 1921 to 1926, if 1923 is not considered. This year, however, shows more regular shipments than any other year of the series. The improved stability in the shipments of these products is in line with the general idea that automobiles are securing a more year round use. The trend is also in line with the greater uniformity of gasoline consumption just discussed.

A very marked tendency toward stabilization is observable from 1920 through 1926 in the shipments of electric washing machines by manufacturers. From 1926 through 1928 the tendency seems to be away from stability. Since 1921 sales in this industry have been expanding rapidly. This, like shipments of gasoline and some other commodities referred to, is a striking case of improved stability with increasing shipments.

One large furniture manufacturers' association, steadily improving the stability of its business from 1920 to 1926, attained in the latter year a uniformity of trade materially greater than anything reached in the seven preceding years. In 1927, however, shipments were much more irregular."

"Data for "Household Furniture and Case Goods," compiled by the *Survey of Current Business*, covering the reports of three associations, show an improvement in stability from 1921 to 1923 but considerable variation in regularity since that time.

The quarterly carload shipments of hides and leather have been increasing in regularity since 1924. This was preceded by a shorter but more rapid trend toward greater stability from 1920 to 1922. The deviation in 1927, which is the year of smoothest flow, is less than one-third as great as that of 1920.

Manufacturers' shipments of industrial pumps have shown a much greater stability since 1921, but there has been no significant trend during these seven years.

Others of these unclassified industries show no discernible trend. Shipments of rubber heels show very little change in stability.<sup>19</sup> The movement is seasonal, with late spring or summer usually the low months. Apparent consumption of cottonseed by mills was somewhat more stable in 1927 than in either 1925 or 1926, but much less stable in 1928 than in any of these three years. The period covered in both of these cases is too brief to permit important conclusions.

Shipments of pneumatic tires became seasonal in the years 1925-1928, following a rapid gain in stability for several earlier years.<sup>20</sup> From October, 1921, until September, 1925, a spring dating plan, in effect protecting dealers against price changes, was in operation. This was undoubtedly of great significance in the stabilization of trade during that period. A revival of the spring dating system just prior to 1927 appears

<sup>19</sup> These are shipments of rubber heel manufacturers to domestic shoe manufacturers and do not include shipments to the repair trade, which are about one-third of the total.

<sup>20</sup> Data are manufacturers' shipments to purchasers. Shipments to warehouses, to branches, or on a consignment basis are not included.

also to be reflected in the improved stability of the latter year.

Manufacturers' shipments of agricultural implements were less regular in 1926, 1927, and 1928 than in any of the three years preceding. A study of the monthly shipments of this commodity indicates that the greater irregularity has been due to an improving business, which, being seasonal in character, has caused a greater deviation from stable trade.

### IX. TWO PERVASIVE SERVICES

The flow into trade of certain services is as significant an indication of stability, or the reverse, as the flow of tangible goods. Two examples, chosen because of their extent and pervasive character, are advertising and railway transportation. Advertising has become the tool of almost every form of business. Our railway system is by far the largest service-manufacturing plant in the country. We have no other piece of physical capital of comparable value devoted to a single purpose. There is no industry in which the stability of the flow of service rendered is so significant. Considering only freight and omitting from consideration the relative value of carrying freight of various types, the service rendered is the net ton-miles of freight carried, both revenue and non-revenue. The stability of flow of this service into the market can be measured in the same way that the stability of flow of any tangible product can be measured.<sup>21</sup> The number of lines of advertising

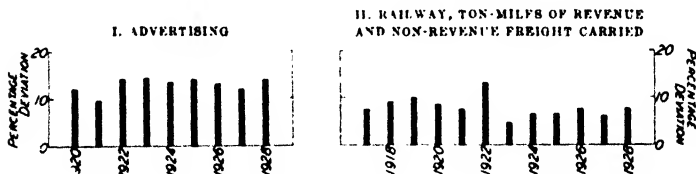
<sup>21</sup> Data on net ton-miles are reported in *Monthly Reports* of the Interstate Commerce Commission, "Freight and Passenger Service Operating Statistics of Class I Steam Railways in the United States."



carried from month to month furnish a basis for measuring advertising.<sup>22</sup>

*What of the stability of the flow of services in these two industries?* (See chart on this page.) Magazine advertising is an extremely seasonal activity with high points in April or May or both and in October or November or both, and low points in January and August. Over a period of nine years, 1920-1928, there appears to be no change in these seasons. Nor has there been

THE FLOW OF ADVERTISING AND RAILWAY TRANSPORTATION SERVICES  
(Average percentage deviation of monthly data from the arithmetic mean for the given calendar year)<sup>a</sup>



<sup>a</sup> For description and sources of data see footnotes 21 on page 329 and 22 on page 330.

much change in the regularity through the year. The year 1921 is the most stable of the series. The years since 1921 have varied slightly among themselves and all show a somewhat greater irregularity than either 1920 or 1921.

The railways of the country have in every year since 1922 found a more stabilized use for their services (as measured by ton-miles of freight carried) than in any

<sup>22</sup> Data on the number of agate lines of advertising carried in 60 leading magazines are compiled by *Printer's Ink*.

earlier year studied. (The period studied was 1917-1928.) The year of greatest irregularity of service was 1922. There has not been a trend toward improvement since that year. Rather, 1923 brought a very marked betterment; and although no year since has equalled the record of 1923, all give evidence of the new regularity already indicated. The last year of the series, 1927, shows a regularity in the use of railroad service greater than that for any other of the eleven years studied excepting 1923.

The flow of our national trade has been tending toward a greater stabilization during the last seven or eight years. A survey of the conclusions reached for each industry which was studied shows in a great majority of cases that stability has been growing. Important in the evidence is the improvement in the stability of the flow of railroad service. But the exceptions to this conclusion, as well as the conformities to it, are significant. Certain industries are less stable than they were. Where stability has been gaining, it has not covered the same years in all cases; and in some instances where strongly marked, has been sharply interrupted. In a few industries the last year or two have shown a trend contrary to the tendency which had been in progress for a series of years.

## CHAPTER XVII

### THE FLOW OF GOODS: ON TO THE CONSUMER

Leaving the hands of miners, lumbermen, manufacturers, farmers, or others concerned with what may be called the earlier tasks of production, goods are moved on toward the consumer, chiefly through the operations of wholesalers and retailers. What has been happening to the flow of goods in this stage of production? Has there been a gain in stability of trade or a greater irregularity? <sup>1</sup>

#### I. WHOLESALERS' SHIPMENTS

Figures compiled by the Research Division of the Federal Reserve Board make it possible to study the sales of a considerable number of wholesale lines.<sup>2</sup> To determine the stability of trade from year to year for a series of ten years beginning in 1919, data in the fol-

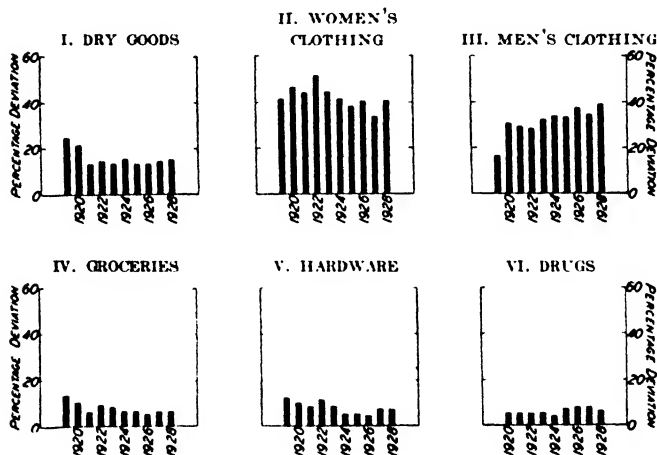
<sup>1</sup> For method of measuring stability see explanation on page 280.

<sup>2</sup> Federal Reserve *Bulletins* refer to them as wholesale sales. An inquiry to each of the Federal Reserve Districts reporting, however, discloses that in eight cases—which include Boston, New York, and Chicago—it is shipments which are reported. In one or two cases it is believed that orders received rather than shipments are reported by the individual firms, and in at least two cases uncertainty was expressed as to what interpretation was given to the term, together with the belief that both shipments and orders were to some extent represented. It seems safe to conclude that the data are typically shipments with some alloy of orders. Data are published in the *Survey of Current Business*.

lowing wholesale fields have been examined: wholesale dry goods, women's clothing, men's clothing, wholesale hardware, wholesale drugs. The monthly sales of a considerable number of individual wholesalers have also been obtained.

### THE FLOW OF WHOLESALERS' SHIPMENTS

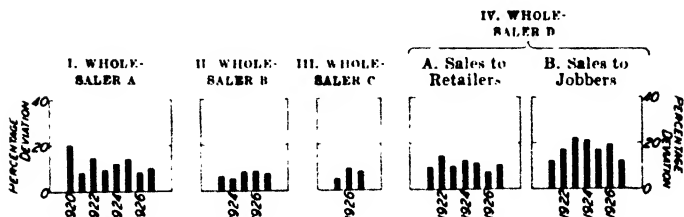
(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



*Wholesalers' shipments show much less variation from year to year over the last ten years than do manufacturers' shipments. (See chart on this page.) While the flow of goods in wholesale trades has shown in some instances tendencies toward stability and in others trends away from stability, sharp changes or strongly contrasting sets of years are much less in evidence than in the flow of goods from manufacturers. Comparing*

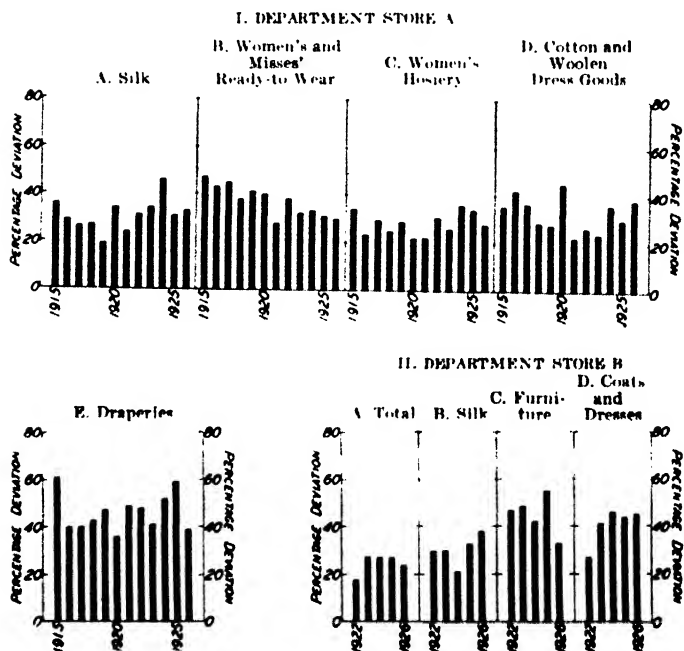
## SHIPMENTS OF INDIVIDUAL WHOLESALE GROCERS

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



## SHIPMENTS TO TWO DEPARTMENT STORES

(Average percentage deviation of monthly shipments from the arithmetic mean for the given calendar year)



one wholesale trade with another, trends are at some variance. In by no means all wholesaling was there an increase in stability immediately following 1921. In the shipments of men's clothing, for example, the trend was steadily toward less stability from 1922 through 1928. In the women's clothing trade, business was less stable in 1922 than in 1921. The same was true of shipments of dry goods, groceries, and hardware.

If we consider only the period since 1921 there is improved stabilization of the shipments of women's clothing, 1922-1927, and of hardware, 1922-1926. The flow of shipments has tended to become less stable in men's clothing, 1922-1928; in wholesale drugs, 1924-1927; and in wholesale dry goods, 1925-1928. Although there are slight variations from year to year, no trend is discernible in shipments of wholesale groceries.<sup>1</sup>

## II. TO THE CONSUMER

The flow of goods to consumers is represented by the sales of department stores; of mail order houses; of chain restaurants; and of chain stores selling groceries, wearing apparel, shoes, cigars, musical goods, candy, drugs, and five and ten cent articles.<sup>2</sup>

<sup>1</sup>The shipments of a number of individual wholesale grocers have been obtained and deviations computed. Companies B, C, and D correspond to Companies 4, 3, and 5, respectively, referred to on pp. 174-177. Companies A, B, and D correspond to the Missouri, Pennsylvania, and New York wholesalers, respectively, discussed on pp. 170-174. Deviations have also been computed for the purchases of a variety of commodities by two large Washington department stores. These may be examined in charts on p. 334.

<sup>2</sup>Data are sales of about 560 department stores located in 250 different cities, of four large mail order houses, of 34 grocery chains, of four candy chains, of 13 drug chains, of four cigar chains, of 14 ten-cent chains, of seven shoe chains, of four music chains, of

*A persistent repetition in the time distribution of his purchases is the most striking feature of the consumer's buying.* (See charts on pages 337 and 340.) In certain cases consumer buying is highly seasonal, but the seasons hold from year to year with a remarkable fixity. The grip of habit on the consumer is most impressive in his dealings with department stores; perhaps least so in his mail order house buying. The impress of custom in time of buying is also marked in the consumer's patronage of chain stores, but there is considerable variation among the several types of chains.

In five of the ten chain store series studied (wearing apparel, groceries, candy, five and ten, and Childs restaurant) there is a slight variation in stability from year to year, but no long trends and no one period significantly different from any other. Two chains, however, (candy, and five and ten) do show a short trend toward stability from 1926 through 1928. Also, the sales of grocery and Childs restaurant chain stores were more stable during the last three years of the series than in any earlier three-year period. In all of these cases the most noticeable fact is that in one year the flow of trade is about as stable as in another.

Shoe store sales were noticeably more stable from 1925 through 1928 than in any earlier period. In the cases of drug, cigar, and J. C. Penney chains there is a slight trend toward less stability from 1921 to 1925, with 1924

---

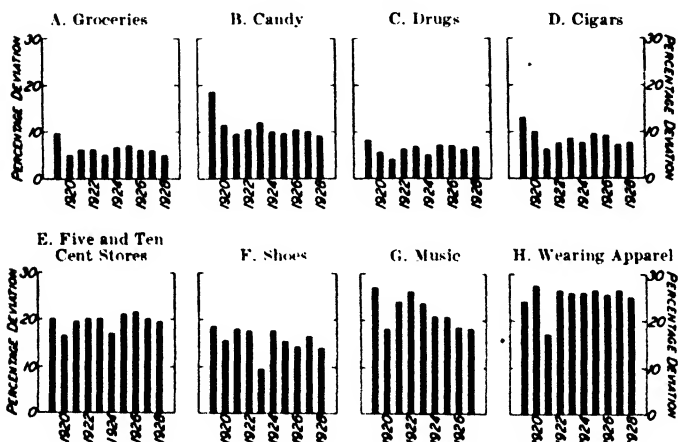
five apparel chains, of Childs Company chain restaurants, and of J. C. Penney Company chain clothing stores, compiled by the Federal Reserve Board, Division of Research and Statistics and published in the *Survey of Current Business*. Sears, Roebuck and Company furnished figures of their sales beginning with 1910.

somewhat out of line. The increase of "notions" lines rather than a change of buyers' habits probably accounts

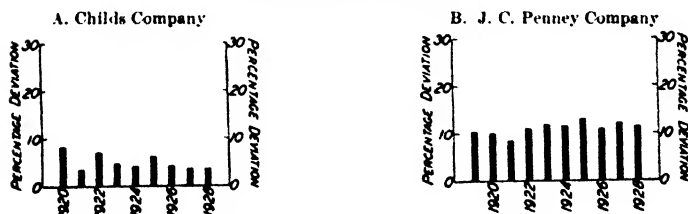
### CHAIN STORE SALES TO CONSUMERS, 1919-1928

(Average percentage deviation of monthly sales from the arithmetic mean for the given calendar year)

#### I. CHAIN GROUPS



#### II. INDIVIDUAL CHAINS



for this in the case of drug store chains. Again the lack of change in stability from year to year is more striking than are such changes as do exist.



Chains of stores selling musical goods enjoyed a considerable and continuous improvement in uniformity of sales from 1922 through 1927. There seems to have been an increase in the importance of the spring season, while the fall season showed little change. Apparently our time of consumption is more variable for music than for many other goods. This is the only case in which chain store sales show for a period of more than three years any considerable trend in their degree of stability.

There is much difference in stability of sales among these chains. Sales of Childs restaurants are most smooth, with only a slight deviation from a regular flow. This is as might be expected. But a study of the monthly sales of this provider shows a surprising seasonality. The fact that this restaurant chain has lower sales in February than in either January or March in each of nine consecutive years is probably due to there being fewer days in February. But why has there been a larger patronage of this restaurant in August every year than in July? While the rise in sales in December may be accounted for by Childs' Christmas dinners, why is it that September sales are usually higher and never lower than those of November, which includes Thanksgiving Day?

The next most uniform flow of goods to consumers is through the grocery chains, in which no regular seasonal movement can be discerned. Drug chain sales are next in stability, but there is a sharp jump in sales every year in December, reflecting, no doubt, the department store character of drug stores rather than a general increase of illness. The fact that sales are low in January and

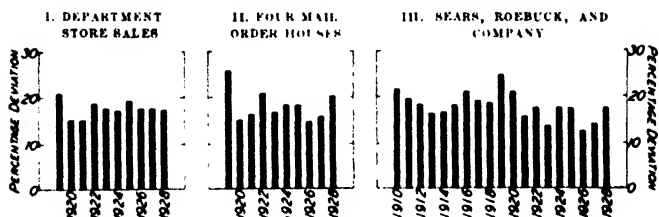
February is undoubtedly related to the same characteristic of "drug" stores rather than to improved well-being in those months. The greatest variation from uniform sales, in any of these chain stores, is found in the operations of women's apparel chains.

The most noticeable feature of department store sales is the regular irregularity which occurs from year to year. The seasonal movement is pronounced, with an extreme high every year in December and a secondary peak in the spring months of March, April, and May, with the high most commonly in May. The December peak is almost twice as high as that in the spring. The lows are in February and July, with July commonly the lower of the two. These variations occur with surprising regularity from year to year. The chart picturing deviation (page 340) in each of ten years shows no striking trends or differences among the years. There is, however, a slight tendency toward stability from 1925 through 1928. The years 1920 and 1921 were those of the smoothest flow, but an examination of the monthly sales suggests that the reasons were not the same for each year. The smoothness of the 1920 flow was considerably influenced by the fact that late summer sales held up strongly; in 1921 the most marked influence was the lowness of both spring and December peaks. The continuance of the sharp December peak throughout the period indicates that the consumer is still doing his department store Christmas shopping on a hand-to-mouth basis. Campaigns for shopping and mailing early have changed the seasonal action of department store sales little, if at all.

Mail order houses have achieved a somewhat greater uniformity of sales through the years since 1922. There was, however, a trend away from regularity in the period 1926-1928. The serious collapse of business in 1920 and 1921 makes a comparison of these with the vigorously growing years which followed unwarranted. Sales are decidedly seasonal, with a spring peak almost invariably in March and a higher one in the fall. Fall sales, however, have undergone, in the ten years studied, a

#### DEPARTMENT STORE AND MAIL ORDER SALES TO CONSUMERS

(Average percentage deviation of monthly sales from the arithmetic mean for the given calendar year)



very interesting change. Prior to 1924, December sales were never as high as those of either October or November. Indeed, in certain years they were decidedly lower. Apparently, mail order customers always did their Christmas shopping early. But beginning in 1924, December sales took on a new significance, until in 1926, in 1927, and in 1928 they were far ahead of those in either October or November. Either Christmas sales of mail order houses are expanding, or purchases of Christmas and other winter goods are being postponed and done on a more hand-to-mouth basis. Not only the

steady improvement of transportation, but the vigorous policy of filling orders more quickly as adopted by the larger mail order houses lends color to the inference that consumers have changed their practices. Undoubtedly the establishment of direct outlets in many cities has added to this changed seasonal movement, as it has made the mail order houses more nearly resemble department stores.

A second change which has no doubt aided in smoothing the sales curve of mail order houses is the development of a new season. Beginning in 1925, June sales began to advance over those of May. Prior to that time they were uniformly lower. In each year, 1925-1928, the June sales increased in relative importance, showing, in a monthly diagram of sales, a June peak, which in 1928 had replaced March as the secondary one. Whether this is delayed buying of summer goods by consumers, or the development of more summer consumption, cannot be stated, but the new situation has aided in stabilizing the flow of goods from mail order houses to consumers.

A study of the sales of Sears, Roebuck and Company, for a period of 19 years, justifies the conclusion that the improved stability in the flow of mail order sales is real even when compared with pre-war business. Here again there is an increase in instability from 1926 through 1928. While there was a trend toward more uniformity from 1910 through 1914, there have been since 1922 three years showing more stability than was ever before attained, and the average of the years 1922-1928 is

definitely lower than the lowest pre-war year. There were two pre-war years, 1915 and 1916, when this company's December business behaved much as mail order house business has since 1924. In these years, December sales were higher than those in October or November. In 1928 the peak of sales in December was extremely high.

The experiences of all these retail outlets make it clear that although the time distribution of consumers' purchases may be modified, such modification is not easy. The habit pattern is strong. In other words, consumer buying has retained throughout the period much the same degree of stability. While buying from certain outlets shows slight changes, and while an occasional year is out of line, in general the consumer from 1919 through 1928 has spread his purchases in one year much as in another.

## CHAPTER XVIII

### STABILIZATION OF STOCKS

Have modern methods of buying and selling made it possible to increase the stability of stocks carried by society in its production activities? Stable stocks would make it possible to adjust warehouse space, the use of liquid capital, and the requirements of insurance, accurately and economically. If we have been able to stabilize stocks at the same time that stock burden has been lowered, the gain to industry generally is significant indeed. In studying the stabilization of stocks, as in other aspects of this investigation, it is the situations of business men and industries that must be examined. As business is the chief producer for society, society can improve the stability of stocks carried chiefly through the improved stability of individual businesses. It follows that in this chapter, therefore, as in other cases, the evidence consists of samples from each of a number of industries. The industries represented by more than one sample are iron and steel, non-ferrous metals, textiles, building materials, and food products. Pneumatic tires, gasoline, hides and skins, leather, rubber heels, and cottonseed are considered without grouping.<sup>1</sup>

<sup>1</sup>Sources of the data will be indicated as each industry group is introduced. All data, except where otherwise specified, are published in the *Survey of Current Business*. The method for measuring the stability of stocks is the same as that used in the case of orders. For explanation, see p. 280.

## I. IRON AND STEEL

The four samples from the iron and steel industries are iron ore, merchant pig iron, steel sheets, and steel barrels.

*Only in the finished products can any tendency to wards more uniform stocks of iron and steel be observed.* (See chart on page 345.) Even here the only definite course is in steel sheets, where the trend towards stability from 1922 through 1928 is marked and almost continuous. There is a slight trend toward more steady inventories for steel barrels, 1925-1928, but the series of years is too short to justify any positive statement.<sup>2</sup> Stocks of iron ore became somewhat more uneven from 1921 through 1926.<sup>3</sup> In 1927 and 1928 stocks were slightly more steady. The variation from a uniform quantity of stocks is much greater for this product than for steel sheets and barrels, due no doubt to the seasonal movement of ore through the Lakes.

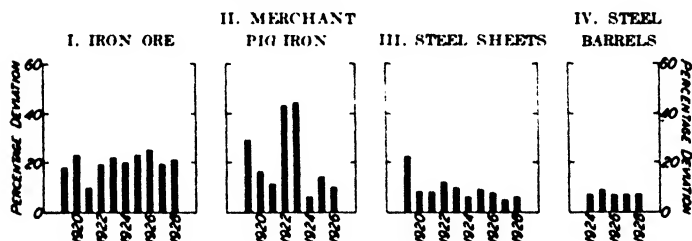
Stocks of merchant pig iron, as measured by the average percentage deviation, were very irregular during

<sup>2</sup> Data are total stocks (in tons) of steel sheets—black, blue, galvanized, and full finished—compiled by the National Association of Flat Rolled Steel Manufacturers, representing almost all of the independent sheet steel manufacturers; and total stocks (in number of barrels) of steel barrels compiled by the U. S. Department of Commerce, Bureau of the Census, from the reports of 30 establishments.

<sup>3</sup> These are the total stocks of iron ore held at furnaces and Lake Erie docks. They are, therefore, as properly considered stores of raw materials as they are stocks of finished goods. As the only stocks held at the mines, however, are those produced by the underground mines during the winter, the distinction is without great significance in this case. Data are tons of stocks on hand at the end of the month as compiled by the Lake Superior Iron Ore Association.

1922 and 1923.<sup>4</sup> It is doubtful, however, whether this type of measurement has much significance for those years, as during them sharp trends almost completely eliminated the seasonal movement which is observable in other years of the series. It is possible to draw the conclusion that stock stability was improving from 1919 to 1924, if we do not consider 1922 and 1923. Positive

STABILITY OF STOCKS IN THE IRON AND STEEL INDUSTRY  
(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section I of this chapter.

conclusions from these data must be drawn with caution because of the significance of cyclical movements.

On the whole, the evidence of iron and steel is somewhat conflicting, with the weight of the data indicating some improvement in stability of stocks, particularly as the later stages of manufacturing are reached.

<sup>4</sup> Data are stocks of pig iron (in tons) held at merchant furnaces, compiled by the American Pig Iron Association and published in "Metals and Machinery" section of the *Record Book of Business Statistics*, representing about 90 per cent of the production in strictly merchant furnaces.



## II. NON-FERROUS METALS

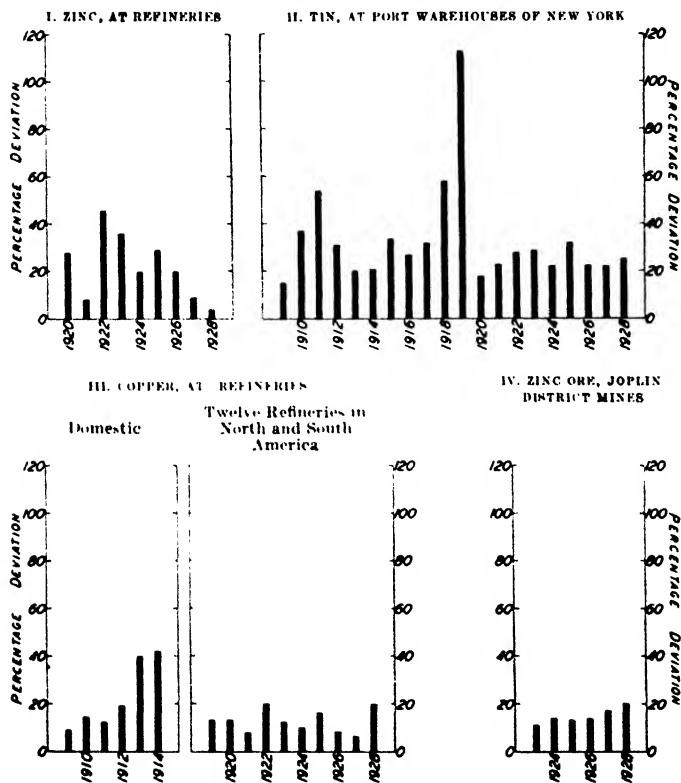
Zinc stocks at refineries, tin stocks at New York port warehouses, stocks of refined copper at refineries, and zinc ore stocks at Joplin district mines are the samples of stocks of non-ferrous metals that have been considered.\*

*In non-ferrous metals there is considerable evidence of improved stability of stocks since 1922.* (See chart on page 347.) Stocks of refined zinc and copper (except 1928) have shown an almost continuous improvement in stability during these years. Copper stocks in 1928, however, were more unstable than in any other year of the series 1919-1928. Data on copper stocks for the years 1909-1914, comparable from year to year but not comparable with the copper data from 1919 on, show an almost steady increase in the variation of stocks held. Stocks of tin have varied somewhat more than refined copper and zinc since 1922, being relatively irregular in 1925 but showing a more even tonnage through three years following than for five years preceding. In this commodity a comparison can be made among years as far back as 1909. The year of most stable stocks in the entire 20-year series is 1909. The years 1910 and 1911, however, show considerable irregularity. The general

\* Data are stocks at refineries (in tons) of total primary zinc, at the end of the month, from American Zinc Institute; stocks of tin (in tons) at port warehouses in New York from the New York Metal Exchange; stocks of refined copper (in tons) 1909-1914, compiled by the American Copper Producers' Association, representing domestic conditions, and 1919-1928, compiled by the American Bureau of Metal Statistics, representing the holdings of twelve refineries in North and South America; zinc ore stocks (in tons) at Joplin district mines from the *Joplin Globe*.

## STABILITY OF STOCKS OF NON-FERROUS METALS

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section II of this Chapter.

average of stability before 1917 is not materially different from the average since 1921 or 1922 but shows somewhat less regularity. The extremely great deviation in 1919 has little to do with ordinary business movements. There were practically no stocks of tin held during the first seven months of the year, a considerable quantity during July and August, but a far larger amount in September than for any other single month for the entire series of years. It is a most striking case of rapid accumulation of inventories.

Stocks of zinc ore at mines became increasingly regular from 1923 through 1928, except that they were somewhat more irregular in 1924 than in 1925 or 1926. This is an interesting contrast to the fact that stocks of refined zinc became increasingly more stable during the same period except that they were more stable in 1924 than in 1925.

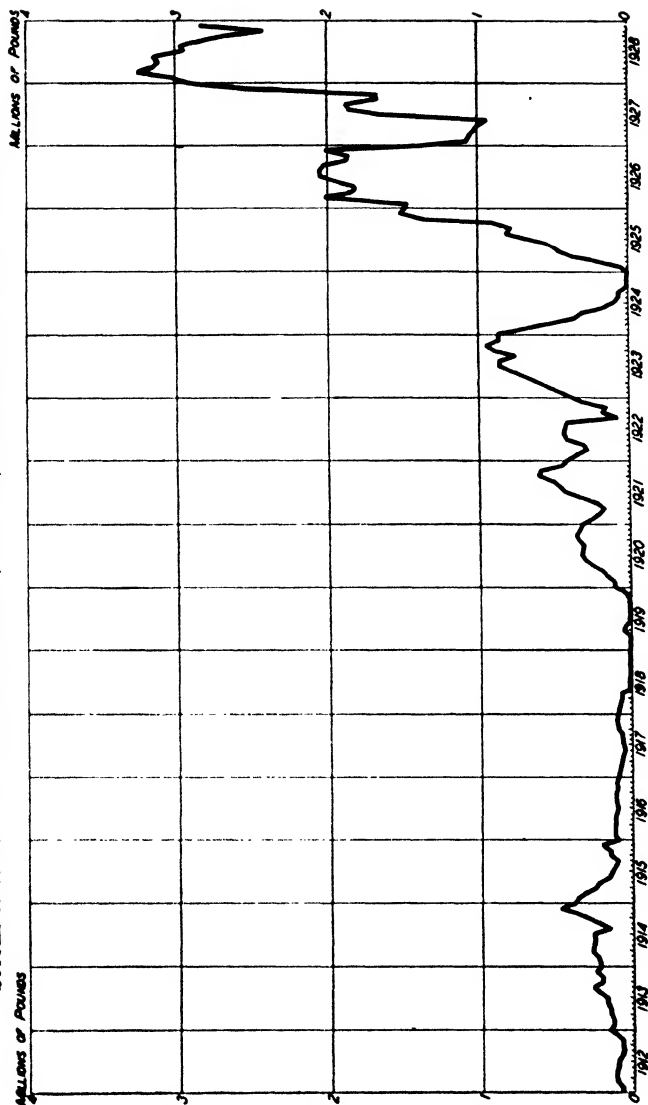
### III. MANUFACTURERS' STOCKS OF TEXTILES

Textiles are represented by rayon, raw silk, raw cotton, finished cotton goods, work clothing, and hosiery.\*

*Variations among the samples make any generalization of stability of textile stocks unjustified.* (See chart

\* Data are pounds of rayon stocks in bonded warehouses, bales of cotton held at domestic mills and warehouses, stocks of work clothing (number of garments, reported by 158 establishments), and pairs of hose (reported by about 44 per cent of the industry), all compiled by the U. S. Department of Commerce, Bureau of the Census; bales of raw silk at manufacturing plants, computed from data reported by the Silk Association of America, covering from 35 to 60 per cent of the industry; and cases of finished cotton goods as compiled by the National Association of Finishers of Cotton Fabrics, covering work done outside of regular textile mills.

STOCKS OF RAYON IN BONDED WAREHOUSES, JANUARY, 1912-DECEMBER, 1928, BY MONTHS



on page 351.) It may be well to look first at the variations in stocks of rayon held in bonded customs warehouses. These stocks show very little seasonal movement and have varied so greatly from year to year that it is doubtful whether the measurement by deviations has great significance. Growth and violent fluctuations, especially since 1920, have been marked characteristics of stocks in this industry. (See chart on page 349.)

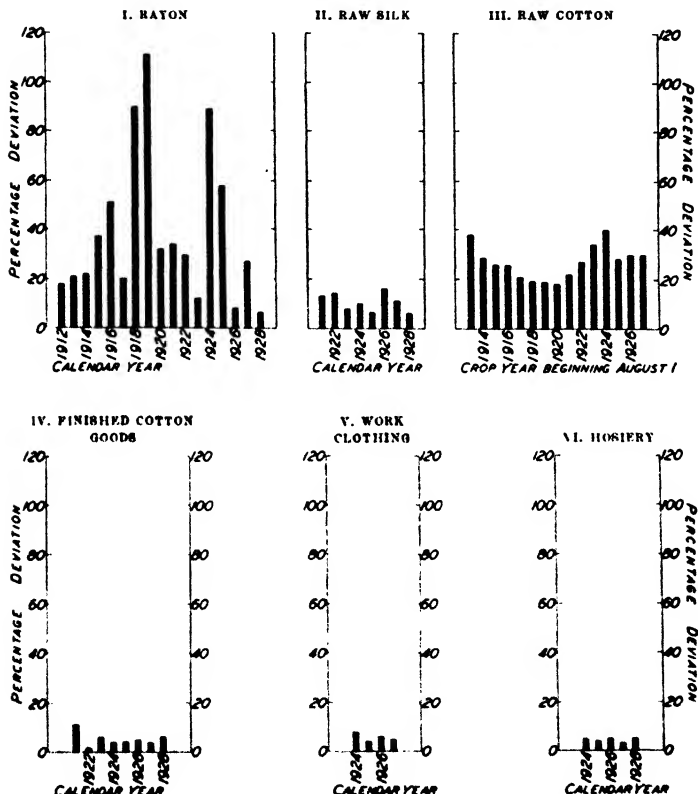
If data for only the years 1921-1925 were available, one would be inclined to say that manufacturers had improved the stability of their stocks of raw silk. In 1926, however, the stocks were extremely high in the early months of the year and dropped rapidly through July, then rose moderately, resulting in a great variation for the year. In the period 1926-1928 the stocks of raw silk manufacturers increased rapidly in stability so that they were almost as stable in 1928 as in 1925, which was their most stable year.

If we examine the stocks of raw cotton held by mills and in public storage, an increasing instability from 1920-21 through 1924-25 is very striking.<sup>1</sup> Improvement was made in the last three years. There was a steady improvement in the stability of cotton stocks from 1913-14 until 1920-21. A study of the more detailed data suggests that when cotton stocks tend to increase for a series of years there is an increase in the stability of the stocks held, and that the reverse is true. The period 1920-21 through 1923-24 furnishes a strik-

<sup>1</sup>The crop year beginning August 1 and ending July 31, rather than the calendar year, was used for raw cotton.

## STABILITY OF STOCKS IN THE TEXTILE INDUSTRY

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section III of this chapter.

ing illustration of declining stocks and declining stability.

Stocks of cotton cloth held by manufacturers have been about as stable in one year as in another during the post-depression period. The year of greatest instability was 1921; this irregularity was caused by a rapid rise in stocks held in the latter half of the year. In 1922 there was practically no deviation in stocks on hand. Since 1923 cotton manufacturers have been lowering their stocks but retaining the stability indicated earlier.

The stability of manufacturers' finished stocks of both work clothing and hosiery has varied little from year to year. Total stocks of hosiery held by manufacturers considered have been trending upward rather rapidly since 1925, but those of clothing manufacturers show no similar movement. In spite of this difference these two industries have maintained a comparatively uniform holding of stocks through the year and from year to year.

As in the case of the iron and steel samples, it will be noticed that the stability of stocks in the textile group improves—apparently becoming more subject to control—as the product arrives in more nearly finished form.

#### IV. THE BUILDING INDUSTRY

In a study of stabilization of stocks, the building industry is represented by approximately the same samples as were used for other considerations. The variations of stocks of southern pine, oak flooring, Portland

cement, face brick, enameled ware baths, and common brick were studied.\*

*The building industry has made a marked advance toward greater stability in stocks in the period since 1920.* (See chart on page 354.) For oak flooring, Portland cement, face brick, and enameled ware baths the trend has been definite and in some cases almost continuous. The stability of stocks of common brick and of southern pine is irregular and does not share the trend of the other building materials. Indeed, stocks of southern pine were noticeably less stable in 1928 than in any other year of the series. The increased stability since 1920 may in part be explained by the fact that stocks have been increasing rapidly during this period, while shipments have risen less rapidly, if at all. (See discussion of stock burden of building materials, page 247.) During the same period the average percentage deviation in shipments has been about the same from year to year. Therefore, that variation in the amounts of stocks taken out each month by shipments has become smaller in proportion to the total stocks held. In other words, the average percentage

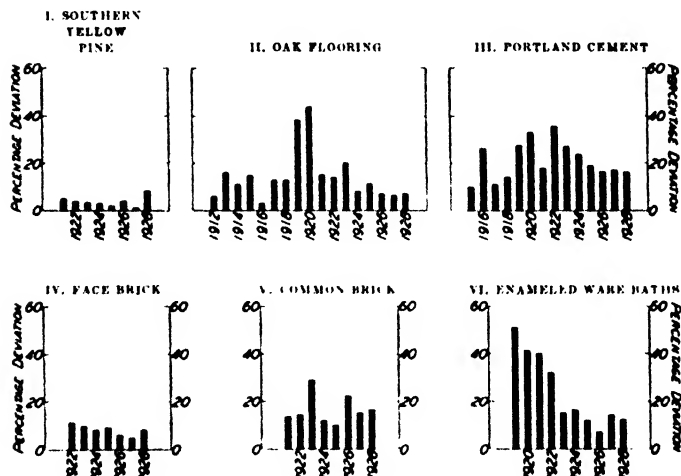
\* Data are board feet of southern yellow pine as computed by the Southern Pine Association; board feet of oak flooring, compiled by the Oak Flooring Manufacturers' Association, representing about 90 per cent of the industry; complete stocks of Portland cement (in barrels), compiled by the U. S. Department of Commerce, Bureau of Mines; number of face bricks held by about 70 firms, compiled by the American Face Brick Association; complete stocks of enameled ware baths (number of pieces) as compiled by the U. S. Department of Commerce, Bureau of the Census; and number of common bricks, compiled by the Common Brick Manufacturers' Association, representing about 30 per cent of the industry.



deviation in stocks, in so far as affected by shipments, has been declining. It appears, therefore, that the greater stability of stocks attained by building materials manufacturers since 1920 has been secured at the cost of holding steadily increasing stocks.

### STABILITY OF STOCKS OF BUILDING MATERIALS

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section IV of this chapter.

As the data on oak flooring have been secured as far back as 1912, it is possible to compare the period before 1920 with that which followed. Such a comparison shows that the condition of stability toward which stocks have been trending in recent years was by no means unknown prior to 1919. Indeed, in 1916 stocks

were held at an almost uniform level during the year. The deviation in that year was 3.3 per cent, while in 1927, the steadiest year since the war, it was 6.5 per cent. The experience of the Portland cement industry bears out that of oak flooring manufacturers. Although stocks varied widely in 1916, they were more stable in 1915, 1917, and 1918 than in any other years in the series 1915-1928.

## V. STOCKS OF FOOD PRODUCTS

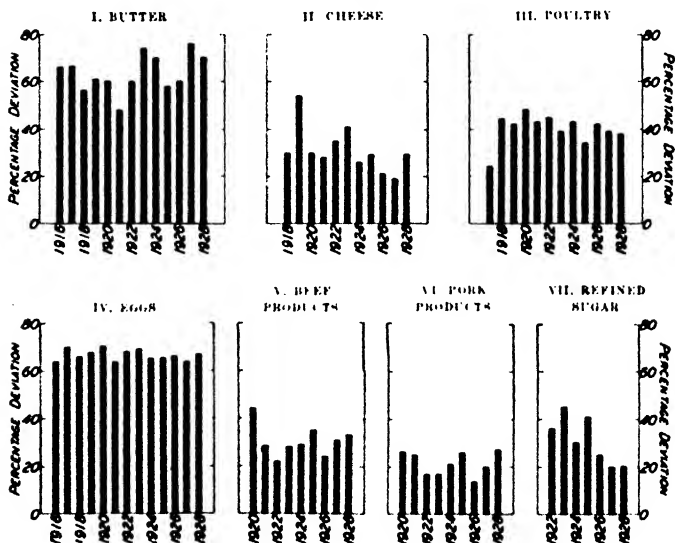
The stocks of a fairly representative array of food products have been studied. The list includes cold storage holdings of butter, cheese, poultry, eggs, beef products, pork products, and stocks of refined sugar at refineries.\* The stocks of all of these, as indeed might be said of all food products, are strongly influenced by the forces of seasonal agriculture. The monthly variations within the year are in every case large (considerably less for pork products than for the other samples) so that the deviations are much higher than for many of the products studied. The high seasonality of holdings of these products makes especially in

\* Data are about 98 per cent of the cold storage holdings (in pounds) of creamery butter and of all varieties of cheese, in public and private warehouses; cold storage holdings of poultry (in pounds) and of case eggs (in cases) at principal warehouses; and cold storage holdings (in pounds) of beef products and of pork products, all compiled by the U. S. Department of Agriculture, Bureau of Agricultural Economics and published in the U. S. Department of Agriculture *Yearbook* and in the *Survey of Current Business*. Data on stocks of refined sugar at refineries in Savannah and New Orleans are compiled by the Federal Reserve Bank of Atlanta.

interesting a possible improvement in regularity. Also much has been said in various trade journals about the spread through the year of the consumption of most food products. Any considerable reduction in season-

### STABILITY OF STOCKS OF FOOD PRODUCTS

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section V of this chapter.

ality of holdings, if related to changed technique, would also imply improvement in the highly seasonal employment of producers of these goods and might have significant implications for farm management.

*In only a few of the food industry samples is any improved stability of stocks perceptible. (See chart on*

page 356.) Stocks of refined sugar show a marked gain in stability from 1925 through 1928 and a trend from 1923. This industry shows more definite gains than any other. Holdings of cheese also show a steady trend following 1923, averaging after that date a stability greater than that achieved in any of the six years preceding. Stocks of cold storage poultry were maintained on an increasingly more uniform basis from 1920 through 1928. This trend was significantly broken between 1923 and 1924, and between 1925 and 1926.

Stocks of cold storage eggs have been maintained at almost the same degree of uniformity for the entire thirteen years. This uniformity from year to year, much greater than that of the stocks of any other commodity in the group, has existed in spite of the fact that the seasonal movements are more extreme. Stocks of butter, of beef, and of pork have shown no continued movement toward either lesser or greater stability. In each product the gain or loss of a year or two is soon offset by a movement in the opposite direction. The similarity between the movements in the stability of stocks of pork products and of beef products is worth noticing, however. Both increase in stability from 1920 through 1922 or 1923; decline from 1922 or 1923 through 1925; and, having been very stable in 1926, become less stable from 1926 through 1928.

So far as stability of stocks is concerned, American food industries have made comparatively little improvement during the last eight or ten years.

## VI. STABILITY OF STOCKS IN A VARIETY OF INDUSTRIES

Not classified into groups are gasoline, pneumatic tires, rubber heels, hides and skins, leather, and cottonseed.

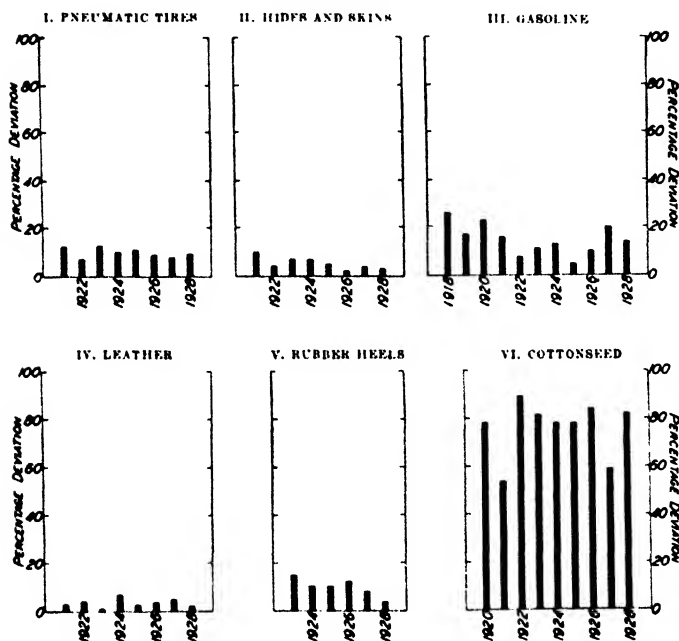
*Of these commodities only pneumatic tires, hides and skins, and rubber heels show a trend toward greater stability of stocks.*" (See chart on page 359.) In stocks of pneumatic tires this trend covers the period 1923-1928. It is indeed interesting that during three of the four years when the spring dating system was in effect, and when the flow of tire shipments from manufacturers was smoothed (see page 325), manufacturers' stocks of tires were less stable than when spring dating was off. Apparently manufacturers found no gain in stabilized shipments so far as leveling stocks was concerned. The year 1922 was the best of the series.

From 1923 through 1928 holdings of hides and skins showed an almost steady gain in stability. In 1926, stocks were more stable than in any other year. In this case the improved stability was a concomitant of declining stocks. Such holdings declined from 500 million

<sup>10</sup> Data are domestic stocks (in number of tires) of pneumatic automobile tires and of rubber heels (in number of pairs) still owned by the manufacturers, whether held at the factory, in transit to or at warehouses and branches, or in possession of dealers on a consignment basis, as compiled by the Rubber Association of America, and representing over 75 per cent of the pneumatic casings industry and about 63 per cent of the rubber heel manufactures; and stocks of hides and skins (in pounds) held by packers, tanners, dealers, importers, and manufacturers, representing practically complete returns from the leather industry and compiled by the U. S. Department of Commerce, Bureau of the Census.

pounds in January, 1921, to 230 million pounds in June, 1927. They were 270 million pounds in December, 1928.

**STABILITY OF STOCKS IN A MISCELLANEOUS GROUP OF INDUSTRIES**  
(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)<sup>a</sup>



<sup>a</sup> For nature and sources of data see discussion and footnotes in Section VI of this chapter.

In the case of rubber heels some of the stability gained in 1924 was lost in 1925 and 1926 but was more than regained in 1927 and 1928.

Stocks of gasoline increased enormously between 1917 and 1928.<sup>11</sup> There was an average of less than 10 million barrels on hand in 1918; of more than 40 million barrels in 1927. Stocks show a definite seasonal movement with a spring high commonly in April. Perhaps the most striking fact is that stocks since 1925 have shown increasing seasonal variation—this despite the alleged all-year use of automobiles. (See page 326 for a discussion of seasonality of consumption of gasoline.) Evidently there are important factors other than consumption affecting seasonality of gasoline stocks.

Stocks of leather and of cottonseed oil vary in stability from year to year, but no trends justifying statements of improvement or the reverse are discernible.<sup>12</sup> In each of these commodities the occasional gains of a year or two are quickly offset by an increase in seasonality.

As a concomitant of current methods of buying and selling there has come some improvement in the stabilization of stocks carried by American industry. This improved regularity has not been equally noticeable in all lines. It is most marked in building materials and

<sup>11</sup> Stocks of gasoline (in barrels) are those held at refineries, and beginning with June, 1923, they also include marketers' stocks. Data represent total stocks of this product as compiled by the U. S. Department of Commerce, Bureau of Mines. Data for 1917-1919 were published in *Standard Daily Trade Service* of April 21, 1924.

<sup>12</sup> Leather is here represented by stocks of finished upper leather (in square feet) held by packers, tanners, dealers, importers, and manufacturers. Cottonseed stocks are those held at mills; they include stocks later destroyed at mills but not those re-shipped. In both cases data are complete reports compiled by the U. S. Department of Commerce, Bureau of the Census.

perhaps least in food products, where the strong influences of seasonal production have not been surmounted. In iron and steel greater stability is noticeable only in the finished or semi-finished products. Stocks of the non-ferrous metals samples (other than ore) have been increasingly stabilized since 1922. The outstanding case of greater seasonality in a single product is stocks of gasoline. Here the forces of less seasonal consumption and of more careful buying (if any) have been far outweighed by an "uncontrolled" production.

Where data make possible a comparison with the period before 1919-20 the evidence is strong that present trends toward stabilization have not brought us to a condition unknown before. The extreme stock variations of most industries in 1919 and 1920 make the improved situation in succeeding years seem better than it appears when compared with the years before 1919. While frequently the similarity in the degree of stability attained in the years before 1919 with that since 1920 suggests that those two years rather than the years that have followed are the unusual ones of the series, there is reason to believe that in certain industries, at least, a new stability has been attained.



## CHAPTER XIX

### DOES HAND-TO-MOUTH BUYING STABILIZE PRODUCTION?

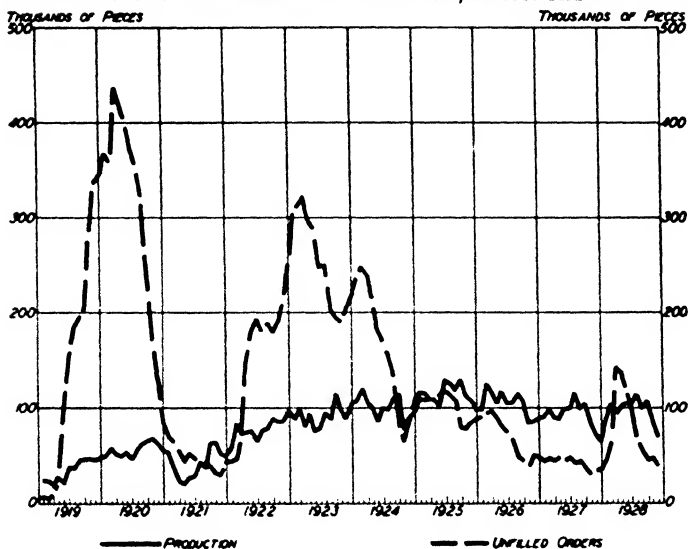
Conflicting opinions as to the effects of hand-to-mouth buying on the stability of production have been repeatedly expressed in discussions of the subject. Some observers believe that difficulty of planning, caused by the lack of advance orders, brings a hesitant, vacillating, and unsteady character to production. Others assert that the spread of orders through the year induces steadier production, conforming to the steadier order flow. The very importance of this issue has been the reason for reluctantly excluding an extended investigation of it from this study. Such an inquiry, it seemed, would be too great an excursion from the trade aspects of the matter with which this volume is essentially concerned.

Nevertheless, some evidence on the question has been examined. Four industries, in the histories of which periods of hand-to-mouth buying had been disclosed by data studied in earlier chapters, were selected as samples. The stability of production in each of a series of years has been measured in each of these sample industries with a view to determining the effects, if any, of hand-to-mouth buying. The samples are enam-

STABILITY OF PRODUCTION AS RELATED TO VARIATIONS IN  
UNFILLED ORDERS

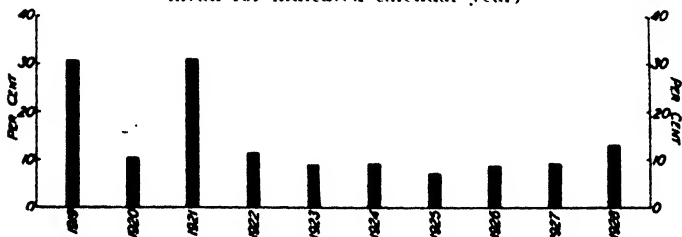
Enameled Ware Baths, 1919-1928 <sup>a</sup>

I. UNFILLED ORDERS AND PRODUCTION, BY MONTHS



II. STABILITY OF PRODUCTION

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)



<sup>a</sup> See footnote 1, page 364.

eled ware baths, oak flooring, knit underwear, and steel ingots.<sup>1</sup>

In one case the data extend well back into pre-war years, making possible a post-war and pre-war comparison. The method of measurement used in each case is, as in the four preceding chapters, securing the average percentage deviation from the average. It is desirable to emphasize the fact that it is the stability of production within each year of a series and a comparison of the stability from year to year that is undertaken; the effort is not to compare the quantity of production in one year with that of another year. The most probable changes within each year are seasonal ones, and seasonal changes are those to which the method employed is best suited. Where there are severe advances and declines of a non-seasonal character which are peculiar to certain years, the year-to-year comparison is much less satisfactory than it would otherwise be.

*Shifts to and from hand-to-mouth buying during the period 1919-1928 have had no significant effect upon the stability of production of enameled ware baths.* The chart on page 363 shows unfilled orders, production, and

<sup>1</sup> Production of enameled ware baths was computed from stocks on hand at the end of the month and shipments during the month compiled by the U. S. Department of Commerce, Bureau of the Census, from reports from the entire industry. Production data for oak flooring, representing about 70 per cent of the industry, are compiled by the Oak Flooring Manufacturers' Association; for knit underwear, representing about 61 per cent of the industry, are compiled by the Associated Knit Underwear Manufacturers of America and by the U. S. Department of Commerce, Bureau of the Census; and for steel ingots, estimated total production on the basis of a sample varying from 84 to 95 per cent of the industry, are compiled by the American Iron and Steel Institute. Data are published in the *Survey of Current Business*.

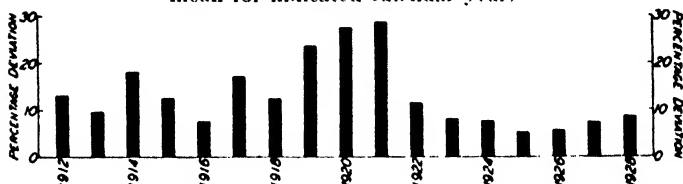
the variation in stability of production for the series of years considered. In 1920 and 1923, when unfilled orders were especially numerous, the stability of production was not particularly different from that of 1926 and 1927, when unfilled orders were particularly few, or from that in 1922, 1924, 1925, and 1928, when unfilled orders were somewhere between these two extremes. The years 1919 and 1921 are those of outstanding instability in production. In each of these years there were such violent non-seasonal movements of production that they cannot be satisfactorily compared with the other years of the series.

From the middle of 1921 to the end of 1925 there was a marked upward trend in the production of enameled ware baths. From the middle of 1922 onward the industry was producing in even larger quantity than during the 1920 boom. It seems reasonable to believe, therefore, that it was operating close to capacity and to conclude that the stability of production attained from 1922 to 1925 (and perhaps in 1920 as well) finds its chief cause in growing business and capacity production. These conclusions have some added support in the fact that this industry lost something of its stability in 1926, 1927, and 1928, years during which the trend of production was slowly downward.

*In the oak flooring industry periods of good advance ordering and of hand-to-mouth ordering follow one another without apparent effect on the stability of production.* (See chart on page 366.) It is true that the years since 1921 have been years of notable stability,

and that these are years commonly thought of as the era of hand-to-mouth buying. In this particular industry, however, the unfilled order situation has varied widely. During the period 1922-1925 there were unfilled orders in large amount on the books at practically all times. In 1926 and 1927, on the other hand, orders were, during the first half of each year, somewhat above shipments in each month and, in the latter half of each year,

STABILITY OF PRODUCTION OF OAK FLOORING, 1912-1928 <sup>a</sup>  
(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)



<sup>a</sup> See footnote 1, page 364.

considerably below shipments. In 1928 unfilled orders on hand at the end of each month were in each instance almost identical with the shipments for the next month. But, as the chart shows, stability of production has not been great in any of these years, and a year of high unfilled orders and a year of low unfilled orders often show the same degree of stability of production.

If we compare the post-war with the pre-war period, the first statement which must be made is that on the average the stability since 1921 is definitely greater than for the years 1912-1916. There is also evidence that during the pre-war as during the post-war years hand-

to-mouth buying was not of importance in affecting the stability of production in this commodity. Unfilled orders were on hand in good quantity from the beginning of 1912 to the middle of 1914. In the latter half of 1914 and in 1915, those on hand at the end of each month were in most cases less than shipments for the ensuing months. Yet such changes in the stability of production as occurred during this period appear to have no consistent relationship to these changes in unfilled orders.

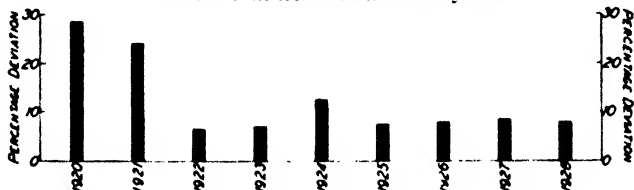
As in the case of enameled ware baths, a study of detailed production data leads strongly to the conclusion that improving stability is found during periods of increasing production, at least when such increase is practically continuous for more than a year. This correlation appeared in the pre-war years 1915-1916—production advancing from about 6 million board feet in December, 1914, to about 11 million board feet in December, 1916. It is strikingly noticeable from 1921 through 1925—production advancing from 6.5 million board feet in December, 1920, to about 42 million board feet in December, 1925. A slight falling off in production in 1927 and 1928 has been accompanied by a slight increase in variation.<sup>2</sup>

<sup>2</sup> With such a method as is used here for measuring stability, the percentage variation that is caused by growth in production becomes less important as the average increases. During the years 1922-1925 the growth in oak flooring production was about the same in one year as another. Therefore, the percentage variation in production caused by growth becomes less important through the period. This fact must be taken into account in considering the gain in stability during these years.

The years of greatest instability—1919, 1920, and 1921—are in each instance years of a sharp change in the quantity of production through the year. All three of these years display such marked trends that they cannot very satisfactorily be compared with most of the other years considered.

*There is evidence that the production of knit underwear is somewhat less stable during a period of increasing hand-to-mouth buying than during a period of good*

STABILITY OF PRODUCTION OF KNIT UNDERWEAR, 1920-1928 <sup>a</sup>  
(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)



<sup>a</sup> See footnote 1, page 364.

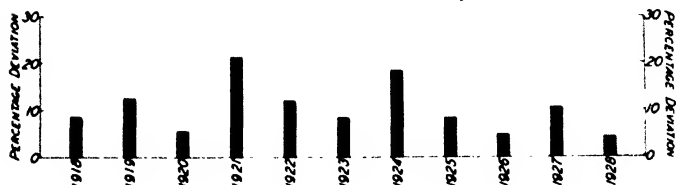
*advance ordering.* (See chart on this page.) Of the seven years 1922-1928 advance orders were in much larger volume in 1922 and 1923 than they were in the period 1925-1928. During these last four years unfilled orders were declining. Production was more stable in 1922 and in 1923 than in any other of the years studied. The gap in production data within 1924 makes it unsatisfactory to consider that year as a part of the series.

*A comparison of the order basis of a leading steel company and the production of steel ingots shows the co-existence of hand-to-mouth ordering and stable pro-*

*duction, 1925-1928.* (See chart on this page.) While there have been in the periods studied some other years of as stable production of steel ingots as some of the years of this era, its continued stability is very noticeable. The years since 1923 or 1924 have been years in which orders have run continuously closer to shipments (according to the record of the steel company presented on pp. 54-55) than in any other years in the history of the industry. There is reason, therefore, to believe that

#### STABILITY OF PRODUCTION OF STEEL INGOTS, 1918-1928<sup>a</sup>

(Average percentage deviation of monthly data from arithmetic mean for indicated calendar year)



<sup>a</sup> See footnote 1, page 364.

this period of increased stability is related to hand-to-mouth buying practices in the steel trade during the past few years.

From this limited survey of four sample industries, it is at least possible to conclude that hand-to-mouth buying has affected stability of production differently in different cases. In the steel industry the evidence suggests greater stability as a result of increased hand-to-mouth buying. In the knit underwear trade the conclusion is just the opposite. In the production of enameled



ware baths and of oak flooring, stability of production seems to be affected little, if at all, by hand-to-mouth buying phenomena, although hand-to-mouth practices were noticeably present in both these industries and repeatedly so in the record of oak flooring.

**C. CERTAIN EFFECTS ON COSTS AND  
MARKETING RELATIONSHIPS**



## CHAPTER XX

### THE COSTS OF SMALL ORDERS

A considerable increase in the relative frequency of small orders may bring a variety of puzzling situations to a business organization. It may be thought necessary to make purchases of materials or goods in smaller units than before. Such reductions may require that higher prices be paid; they may require a revising of transporting and receiving methods; they may bring disarrangement, if not confusion, to organization for storage and handling.

But it is with the possible effect of small orders upon selling costs that business men have been chiefly concerned. The belief among them that an increase in the proportion of small orders increases the costs of marketing is very widespread. It is essentially with this aspect of small order costs that this chapter deals. In considering the question, the points to be borne in mind are these: assuming that a company is selling a certain volume of goods, does it cost more or less to secure and distribute that volume in small units or in large ones? If more, where do the added costs arise? If there are added costs, how great are they? Finally, if such costs occur, what is their incidence; do they fall on the seller, or are they passed on?

To throw light on these questions, several sets of evidence are examined:

1. The experience of 115 manufacturers;
2. Reports of canners' costs;
3. An investigation of warehouse deliveries;
4. Certain studies in the wholesale field.

The experience of the manufacturers will be considered first.

### I. SMALL ORDER COSTS AMONG MANUFACTURERS

The manufacturers whose reports are discussed here constitute the same group of 115 whose order history was considered in Chapter VIII. (See page 100.) That "smaller orders" were adding to their costs was the very general opinion. One hundred and four—90 per cent—declared this to be the case. Only eleven—10 per cent—reported no increased cost from smaller orders.

The added costs due to decreasing size of order may, of course, arise in any phase of marketing. For purposes of this study, the selling process was divided into: (1) securing orders; (2) the office work involved in handling orders; and (3) the physical work of handling and shipping goods. Inquiry was made concerning each of these phases of marketing to ascertain whether added costs were incurred as small orders became a larger proportion of the total number of orders.

It seemed worth while to try to find out not only whence came the added costs to those who had them, but, if possible, how those who avoided them succeeded in

doing so. The 115 manufacturers were, therefore, divided into two groups: the 104 manufacturers who indicated that small orders are increasing their marketing costs, and the 11 who indicated no such added costs. We may consider first the group which has experienced added costs, and open with the question of *securing* orders.

*Does it cost more per unit to secure business in a small-order era than in a large-order era?* A large proportion of manufacturers find that it does. The 104 who reported that added costs came from small orders were asked whether part of these costs came from securing their business. Their replies were distributed as follows: yes, 78; no, 4; not replying, 22. Thus 95 per cent of those replying to the question believe that costs of securing business mount as small orders become more numerous.

But the cost of securing orders is itself a composite of several items. Is it added *pay* for the salesman that works the mischief?<sup>1</sup> Sixty-nine manufacturers replied on this point. The opinion of those who answered was more evenly divided than on the preceding question. Thirty-eight, or 55 per cent of those replying on pay to salesmen stated that there was more total pay for the same volume of business, and 31, or 45 per cent, that there was no added cost of this nature.

Does the added cost of securing the order arise from increased travelling expenses? Of 71 manufacturers reporting, 62 said "yes"; 9 reported "no." Thus in a

<sup>1</sup> It should be remembered that it is added total pay for salesmen in securing a given volume that is pertinent.

ratio of almost six to one, manufacturers find smaller orders bringing added costs from this form of expense. It is clear that a larger proportion of manufacturers are troubled by increased expense accounts than by increased salesmen's pay.

The frequency with which customers are now demanding attention has caused many concerns to resort to the telephone to replace, in part, a salesman's calls. This study clearly showed such increase. Fifty-one manufacturers, or 77 per cent of those reporting on the question, said that the increase in small orders had added to the costs incurred for telephone calls used in securing orders. Fifteen, or 23 per cent, said that this was not the case.

Is more supervision and direction of salesmen required when the proportion of small orders grows larger? Of the 66 manufacturers answering this question, 44 said "yes," and 22 said "no." Thus, 67 per cent of those who replied found increased cost through supervision of salesmen, while 33 per cent did not report such a cost.

How did some avoid added costs of securing additional small orders? What was said by that group of eleven manufacturers who stated that although they have experienced an increase in the proportion of small orders, this had not increased the costs of marketing their total volume? Their replies show that they did not escape every possible increase. Three of the eleven, for example, said that costs of *securing business* had advanced; eight that they had not. The chief point at

which saving in securing the order was made by this small group of manufacturers as compared with the larger group was in the payment of salesmen. Thus this group, reporting on whether added costs came through more total pay to salesmen, replied in the ratio of six to one that such was not the case. About half of them found no added cost through telephone calls or added supervision, but two-thirds did find an increase in travelling expenses for salesmen. Since these companies were not asked to report specifically on how they get more orders with no added cost, the method cannot be stated with great certainty. Since a larger proportion, however, have increased salesmen's total pay, it seems reasonable to conclude that the telephone has to some extent replaced the salesmen's call in their activities. Moreover, since salesmen's travelling expense has gone up in many more cases than salesmen's pay, it appears that several of these companies have found a way to get their men over more territory with no added compensation and apparently with a lower salary cost per dollar of order.

*How are office costs affected by small orders?* Leaving the costs of securing orders, we now ask: what of the office costs for handling orders of different sizes? No less than 95 per cent of those who find an increased marketing cost as the result of small orders find part of that cost arising from the added office expense involved.

An attempt was made to measure the relative office costs for large and small orders. It was realized, however, that it would be ludicrous to attempt to consider orders of all possible sizes for all the companies report-



ing. As has been indicated earlier, "small order" and "large order" are variable terms, depending on the particular business house concerned and even more on the nature of the business. An order which would be considered large by a toy-maker might be very small for a steel manufacturer. Moreover, a large order even in a given line of business and in a given business establishment may have at least two meanings. It may mean an order for a large number of dollars' worth of goods or an order for a large variety of goods, even though the total value is small. Of course, it may mean a combination of these. Conversely a small order may mean one for a few items or a few dollars worth, or both.

To make the question sufficiently flexible to be answerable by a great variety of concerns in a great variety of businesses, it seemed best to permit those responding to use their own judgment as to what constituted a large or a small order in the case of their respective houses. Therefore, the question concerning office costs were prefaced by the statement: "Suppose a 'good sized' order, *for your business*, and an order one-fifth as large *are going through your office*." "Assuming in each case the costs of handling the 'good sized' order as 100 per cent, what is your best estimate of the proportionate cost respectively, for recording, billing, granting credit, and collecting for the order that is one-fifth as large?"

It is unnecessary to give in detail an analysis of the reported costs for each of the tasks, but certain rather striking conclusions or summaries are worth presenting.

(1) It will be well to state first that over one-half of

the manufacturers reporting replied to each of these questions that the cost for the small order was 100 per cent of the "good sized" order. This is equivalent to saying that the office costs for these several activities for a small order are five times as great in proportion to the size of the order as for the larger one considered. These statements, of course, cannot be taken at quite face value, as no doubt many of the firms reporting found it easy to answer "100 per cent" when more accurate calculations might have shown a result somewhat above or below this figure. When they are considered in the light of other statements submitted, particularly the fact that in connection with each activity certain manufacturers found the cost for the small order more than 100 per cent of that of the larger, one is inclined to give them more credence than would otherwise be the case.

(2) In only two cases did manufacturers report that their recording, billing, credit granting and collecting charges, respectively, varied in proportion to the size of the order. Over 95 per cent reported that in connection with each of these activities the costs were disproportionately large in handling the smaller order.

(3) The range of relative costs for the one-fifth size order and the "good sized" order ran from 20 per cent to 105 per cent in the case of recording; from 20 per cent to 105 per cent in billing; from 20 per cent to 300 per cent for granting credit; and from 20 per cent to 300 per cent for collecting.

(4) The average of the percentages reported for the three activities are, respectively: for recording the smaller order, 88 per cent of the cost of recording the larger order; for billing, 82 per cent; for granting credit, 97 per cent; for collecting, 101 per cent. The disproportion in office costs thus reaches a climax in collecting, where the average cost is found to be 1 per cent larger for the "small order" than for one five times as great. Indeed, in the extreme instances collecting cost is three times as great for the small order as for the one five times as large.

While one is at first blush skeptical of such possibilities, that skepticism is to some degree routed by such comments as this, accompanying one reply:

In dollars and cents of cost it actually costs more per order to collect for small than large orders.

Or this, made by a man who reported a great proportionate difference for small orders:

The good sized orders always come from the A-1 risks.

*How do small orders affect unit costs of packing, trucking, and shipping?* The reports received concerning the cost of packing, trucking, and shipping for "good sized" orders and for orders one-fifth as large show some interesting differences from the statements made concerning recording, billing, granting credit, and collecting. Neither in packing, trucking, nor shipping are small orders attended by as disproportionately large costs as they are in office activities. One manufacturer reported that the smaller order actually cost him, for pack-

ing, less than one-fifth as much as the larger, while two reported that the shipping cost was less in proportion.

Eight manufacturers out of 63 replying reported packing costs in exact proportion to the size of the order—that is, that the order one-fifth as large costs one-fifth as much to pack. Eleven manufacturers out of 59 reported similarly for trucking, and eleven out of 60 in the same way for shipping. All others, with the exceptions noted above, stated that the smaller order brought a disproportionately larger cost in each of the activities here under consideration. The range of relative costs for the smaller as compared to the larger was from 10 to 115 per cent for packing; from 20 to 125 per cent for trucking; and from 10 to 125 per cent for shipping. If we take an average of the percentages reported, we may conclude that it costs 54 per cent as much to pack the “one-fifth” order as to pack the larger one; 52 per cent as much for trucking this small order; and 56 per cent as much for shipping it.

What do all of these cost figures amount to if we put them into some general form? One way to summarize is to assume a company called The American Manufacturers, Amalgamated, made up of all the companies reporting in this study, and to assume that this company is putting through two orders: one for \$100, which we will call a “good sized” order, and another for \$20, which, obviously, is one-fifth as large. We may also assume that the cost for each office activity, and for packing, for trucking, and shipping for The American Manufacturers, Amalgamated, bears the same relation

to these two orders as the respective averages of the companies reporting.

The documents for the \$100 order move through the office. Since what is sought is a comparison with the costs of this movement, they might be set down as 100 per cent. But it may be simpler to keep the matter in dollars and cents terms. Therefore, let us say that for the \$100 order it costs \$1.00 for recording; \$1.00 for billing; \$1.00 for the work of the credit department; and \$1.00 for collection. This gives us a total of \$4.00 for the office work on the "good sized" order. The documents for the \$20 order also move through the office. According to the "cost figures" of The American Manufacturers, Amalgamated, this order will require \$.88 for recording, \$.82 for billing, \$.97 for the work of the credit department, and \$1.01 for collection, making a total of \$3.68.<sup>2</sup> Thus the office costs for the \$20 order are 92 per cent of those for the \$100 order. Put in terms of the respective value of each order, the total office cost for the larger order is but 4 per cent of its value, while the office cost for the \$20 order is 18.4 per cent, or over four and a half times as great.

The two orders proceed to the processes of packing, trucking, and shipping. To make our figures easy, we will again assume \$1.00 for each operation in handling the larger order. For the order one-fifth as large, however, the experience of The American Manufacturers,

<sup>2</sup> These figures are, of course, the average percentages arrived at as representing the costs for "an order one-fifth as large." See the several pages immediately preceding.

Amalgamated, shows that the packing charge is \$.54, the trucking charge \$.52, and the shipping charge \$.56. This makes the total of \$3.00 for the three operations on the large order and \$1.62 for the three on the small one. Thus the handling costs of the small order turn out to be 54 per cent of those for the large order. In terms of respective values, the cost of doing these things for the larger order is 3 per cent of its value, and for the smaller order it is 8 per cent, or about two and two-thirds as high a cost. Disproportionate as this figure is, it is not so extreme as the office costs which, it will be recalled, showed a disproportion of four and one-half times when related to the value of the order.

If the American Manufacturers, Amalgamated, combines office and handling costs for each of the two orders, we find results as follows:

\$100 ORDER		\$20 ORDER	
Office costs .....	\$4.00	Office costs ....	\$3.68
Handling costs .....	3.00	Handling costs .....	1.62
Total .....	<u>\$7.00</u>	Total .....	<u>\$5.30</u>

Comparing these total costs, we find that the expense of "officing" and handling the \$20 order is 75 per cent of that involved in handling the \$100 order. It is perhaps not necessary to remind ourselves that if operations in dealing with the small order cost no more in proportion to its size, it would cost 20 per cent as much as to deal with the large order. In costing 75 per cent as much, its costs are three and three-quarters times as great in proportion to its value.

## II. CANNERS' REPORTS OF COSTS

Cost-keeping is a phase of business management not highly developed in the canning industry. More than half of the companies reporting in the study undertaken included no information on comparative costs.\* A number of companies made such statements as: "We know that costs for small orders are disproportionately large, but we do not know the differences accurately," and, "We would not hazard a guess, but the cost on twenty-five cases is as high as on 100 cases," or, "We have no accurate costs for different sizes of orders." The lack of data on costs is the more significant, as in many cases such data were not furnished even by large companies which gave detailed information on sales matters for a long series of years.

So far as adequacy of cost records is concerned, canners may be put into three classes—those whose records yield very little information; those who estimate costs by dividing total cost by number of cases packed, thus reducing everything to a cost per case; and those who keep their records in such a way that in figuring costs they can take into account the differences in handling various sized units. On pages 386-387 there is presented a table showing the relative costs for different sizes of

\* Yet most canners feel sure that small orders are costly. Of 40 vegetable canners who specifically answered the question "Does hand-to-mouth buying bring added costs to canners?" 39 replied that it did. Ten reporting fruit-canners were unanimously affirmative in answering the same question. Data are from replies to the questionnaire sent to members of the National Canners Association.

orders, compiled from the figures reported by eight companies of the last type.<sup>4</sup> Average marketing costs for 100-case and 25-case orders were expressed as percentages of the average costs for a carload order. If the marketing cost per unit of goods were the same for each size of order, these relative average costs would appear as follows:

Carload .....	100.0
100 cases .....	10.0
25 cases .....	2.5

*All phases of selling activities cost more per unit as orders grow smaller.* An examination of the table shows that the cost of securing the order is 6 per cent greater per unit for 100-case lots than for car lots and about 28 per cent greater per unit for 25-case lots than for 100-case lots. The cost of records, per unit of goods, is three times as great for 100-case orders as for carload orders and over eleven and a half times as great for 25-case orders as for carload orders. Cannerymen appear to estimate the cost of billing to be about the same for each order regardless of its size. The cost of loading is about 2.4 times as great per unit for 100-case lots as for car lots and about 2.2 times as great for 25-case lots as for 100-case lots. That is, loading is over five times as expensive for very small shipments as for carload ship-

<sup>4</sup>It will be noticed that there is considerable variation in certain costs, such as packing, as reported by different companies for the same amount of goods. This is undoubtedly due to the fact that somewhat different factors were included under the various headings by different companies. The table, therefore, must not be considered as representing accurately the differences in cost for *specific items* as between different companies.



**COMPARATIVE MARKETING COSTS OF VARIOUS SIZES OF ORDERS**  
(In

Items of Cost	Company 25	Company 32	Company 14	Company 20
<b>Securing Order:</b>				
Carload <sup>b</sup> .....	101.00	101.50 <sup>a</sup>	95.00	120.00
100 cases.....	10.50	11.50 <sup>a</sup>	10.30	12.00
25 cases.....	3.00	4.00 <sup>a</sup>	3.00	3.00
<b>Records:</b>				
Carload <sup>b</sup> .....	.25	1.00	1.00	1.00
100 cases.....	.25	1.00	.75	1.00
25 cases.....	.25	1.00	.75	1.00
<b>Billing:<sup>d</sup></b>				
Carload <sup>b</sup> .....	.25	1.00	1.00	2.00
100 cases.....	.25	1.00	1.00	2.00
25 cases.....	.25	1.00	.75	2.00
<b>Packing for Shipment:</b>				
Carload <sup>b</sup> .....	26.50	9.80	22.00	70.00 <sup>a</sup>
100 cases.....	3.60	1.25	.50	7.70
25 cases.....	1.65	.50	.40	2.00
<b>Loading:</b>				
Carload <sup>b</sup> .....	4.00	2.80	2.00	8.00
100 cases.....	.50	.35	.50	.88
25 cases.....	.25	.15	.40	.25
<b>Trucking:</b>				
Carload <sup>b</sup> .....	...	35.20	...	...
100 cases.....	...	5.50	...	2.00
25 cases.....	...	1.38	...	1.00
<b>Freight:</b>				
Carload <sup>b</sup> .....	...	92.40	117.60	64.00
100 cases.....	...	19.80	17.10	11.20
25 cases.....	...	4.95	4.30	2.80
<b>Total:</b>				
Carload <sup>b</sup> .....	180.00 <sup>f</sup>	243.70	238.60	265.00
100 cases.....	25.60 <sup>f</sup>	40.40	34.65	36.78
25 cases.....	8.77 <sup>f</sup>	12.98	11.20	12.05
<b>Total, less Freight:</b>				
Carload <sup>b</sup> .....	132.00	151.30	121.00	201.00
100 cases.....	15.10	20.60	17.55	25.58
25 cases.....	5.40	8.03	6.90	9.25

<sup>a</sup> Companies 1 and 15 are in the same city.

<sup>b</sup> Carload is 1,000 cases except for Company 22, for which, there being 850 cases per carload, the data have been adjusted accordingly.

<sup>c</sup> Brokerage charge was not reported by this company but was included on same basis as reported by the preceding company.

<sup>d</sup> Cost of collecting was reported by so few companies that it could not be used. There was evidence that it was included in "billing" in some.

<sup>e</sup> Includes cost of labels.

## COSTS OF SMALL ORDERS

387

FOR CANNED FOODS AS REPORTED BY EIGHT COMPANIES, 1928  
(dollars)

Company 41	Company 22	Company 1*	Company 15*	Average	Average as Per- centage of Carload Marketing Cost
100.00	82.00	60.00	60.00	89.94	100.0
10.00	10.00	6.00	6.00	9.54	10.6
2.50	3.50	2.00	2.00	2.88	3.2
1.00	.05	10.00	10.00	3.04	100.0
.50	.05	2.00	2.00	.94	31.1
.50	.05	2.00	1.50	.88	29.0
.50	.05	1.00	1.00	.85	100.0
.50	.05	1.00	1.00	.85	100.0
1.26	.05	1.00	1.00	.91	107.5
...	...	30.00	30.00	31.38	100.0
...	...	3.00	3.00	3.93	12.5
...	...	1.50	1.50	1.53	4.9
7.50	10.00	6.00	6.00	5.79	100.0
2.00	1.00	3.00	3.00	1.40	24.3
1.00	.25	2.00	2.00	.79	13.6
...	...	10.00	10.00	18.40	100.0
...	...	2.00	2.00	2.88	15.7
...	...	1.50	1.50	1.35	7.3
54.00	131.30	197.60	197.61	122.07	100.0
10.40	18.92	30.40	30.40	19.75	16.2
2.85	4.73	7.60	7.60	4.98	4.1
163.00	223.40	314.60	314.61	244.15*	100.0
23.40	30.02	47.40	47.40	35.71*	14.7
8.11	8.58	17.60	17.10	12.05*	5.0
109.00	92.10	117.00	117.00	130.05*	100.0
13.00	11.10	17.00	17.00	17.12*	13.2
5.26	3.85	10.00	9.50	7.27*	5.6

\* Includes freight cost of \$48.00 for carload and trucking charge of \$10.50 for 100-case lot and \$3.37 for 25-case lot.

\* Each canner was asked to report both individual items and total cost. Some reports omitted certain items of costs. Therefore, in the totals these items appear as zero. In computing averages for individual items of cost, on the other hand, these unreported items were considered, not as zero, but as data unavailable. Probably, therefore, the estimate of each detailed item of cost gives a more nearly accurate comparison between different sizes of orders than does the estimate of total costs.

ments. The increase in cost of packing is not nearly so great, yet there is reported an increase of 25 per cent in 100-case over carload shipments and of about 56 per cent in 25-case over 100-case shipments.

COMPARATIVE FREIGHT COSTS OF VARIOUS SIZES OF ORDERS FOR  
CANNED FOODS AS REPORTED BY SEVENTEEN COMPANIES

(In dollars)

Company	Carload	100 Cases	25 Cases
19.....	122.50	15.05	3.75
9.....	102.60	41.85	3.24
32.....	92.40	19.80	4.95
14.....	117.60	17.10	4.30
20.....	64.00	11.20	2.80
41.....	54.00	10.40	2.85
1.....	197.60	30.40	7.60
15.....	197.61	30.40	7.60
12.....	108.30	38.84	10.46
29.....	90.00	13.00	3.25
49.....	72.00	12.60	3.15
46.....	146.00	19.00	4.75
8.....	136.00	18.00	4.50
18.....	86.00	10.00	4.00
48.....	55.10	10.26	2.57
34.....	61.20	13.20	3.30
4.....	120.00	18.60	4.65
Average.....	107.23	19.39	4.57
<i>Average as percentage of carload freight cost .....</i>	<i>100.0</i>	<i>18.1</i>	<i>4.3</i>

As would be expected, the big increase per unit in freight costs comes when the shipment falls below a carload. The increase in cost is 62 per cent when the shipment changes from a carload to a 100-case lot. No appreciable increase in cost per unit occurs as the orders become still smaller. In the table on this page the comparative freight costs of a larger number of companies

are shown, and here we find that the increased cost per unit for less than a carload is 81 per cent. In the case of trucking the cost increases about 57 per cent per unit in 100-case shipments over carload shipments, and about 87 per cent in 25-case over 100-case shipments, making the cost per unit in 25-case shipments nearly three times as great as for carload shipments. Trucking thus becomes an important additional cost as orders become smaller.

It will be seen from a consideration of these data that the most significant increase in costs per case (for such sizes of orders as we have considered), when shipments drop below a carload, comes from added freight charges. For 100-case lots as compared with a carload the added cost without freight is 32 per cent; with freight it is 47 per cent.

What is the social significance of these figures? What do they show concerning the increased cost, if any, of distributing our annual pack of canned goods under hand-to-mouth conditions?

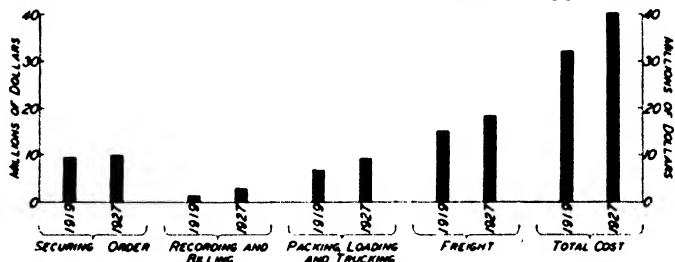
Suppose we compare the cost of marketing a year's pack in the sizes of orders in which the pack was handled in 1927 with the cost of handling it in the sizes of orders in which the 1919 pack was handled, applying in each instance the itemized cost data given on pages 386-387.<sup>1</sup> By making use of the size of order distribution for the two years as arrived at in Chapter VIII and

<sup>1</sup> It will be convenient to assume an annual pack of 100,000,000 cases. The most recent data available show a somewhat higher figure, but earlier years and estimates of the current year show that 100,000,000 cases is a reasonable approximation.

of the relative costs as determined in this chapter, a comparison is possible. The chart on this page shows graphically such a comparison for all the more important items of cost. *The smaller orders of the 1927 method of buying means an added total cost of nearly 8 million dollars in the distribution of canned goods by canners to their customers.*

**COSTS OF MARKETING AN AVERAGE YEAR'S PACK OF CANNED FOODS  
IN SIZES OF ORDERS PREVAILING IN 1919 AND IN 1927**

(Based on itemized cost data reported in 1928—see pp. 386-387)



### III. COST CURVES FOR WAREHOUSE DELIVERIES

That warehousemen have for some years been disturbed by the belief that there was an increase in the proportion of small orders delivered out of their houses has already been stated. The topic has been frequently discussed in their periodicals and considered in their conventions. The results of a brief study of the comparative size of orders out of warehouses are given on pages 159-169.

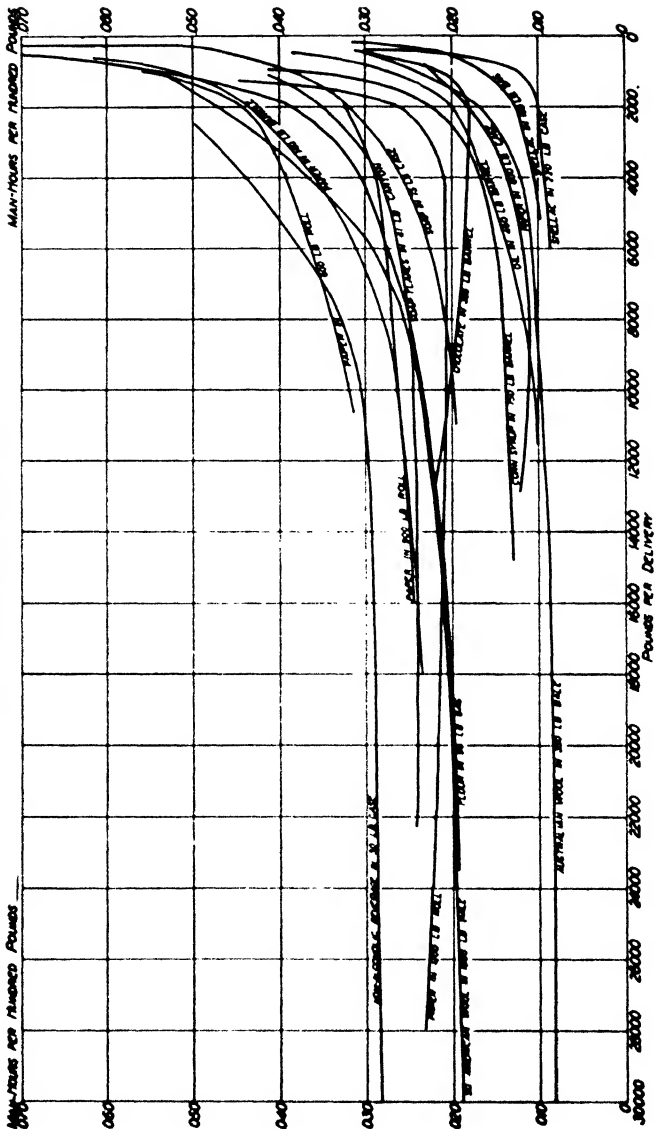
The belief that his "out" orders were becoming smaller has been always accompanied by the fear that smaller orders brought added costs. What does ware-

house experience add to the general question of the costs of small orders?

*Studies have shown that warehouse delivery costs advance as the size of "orders out" goes down.* The most careful study of the question which has come to hand is that of Mr. Anson M. Titus, who from 1918 to 1925 was cost accountant for the Quincy Market Cold Storage and Warehouse Company of Boston. A graphic presentation of the findings of Mr. Titus is given in the accompanying chart. As the costs are expressed in man-hours, they may be considered valid at the present time, even though several years have passed since their compilation.\* In discussing the chart reproduced on page 392, Mr. Titus says: "Follow each curve through the maze and with one or two exceptions the cost of delivery in man-hours increases as the size of the delivery decreases. A further analysis of the exception will undoubtedly reveal peculiarities of working conditions causing the perversity. In all cases, however, when the size of delivery reaches smaller dimensions, the curves rise much more rapidly than in deliveries of greater bulk. Each curve makes its sharpest curve from the transition from low cost to high cost somewhere in the vicinity of 2,000 or 3,000 pounds per delivery. In other words, if a delivery of less than this quantity is made, the cost becomes excessive; and if such are persisted in from any one consignment of goods, the number of deliveries becomes excessive."

\* The writer is also informed by Mr. Wilson D. Little, Executive Secretary of the American Warehousemen's Association, that there have been no technical changes in the warehousing industry which would invalidate the figures for present day purposes.

## (In man-hours per 100 pounds)



The curves do indeed appear to bear out the observations of the investigator. A discussion of the detailed variations of costs shown is not necessary. It is worth saying, however, that Mr. Titus concludes "if deliveries average less than one ton on a consignment of goods, an extra charge should be made."

#### IV. A WHOLESALE GROCERY SAMPLE

The changes in costs involved as orders vary in size appear to be far less well known to wholesalers than to manufacturers. Correspondence and conference with a considerable number of wholesalers furnishes evidence of desire to know such costs but evidence also that little is known. Among the agencies which are now actively exploring this field, the United States Department of Commerce is prominent.<sup>1</sup>

The relative costs of orders of varying sizes determined by one of the leading wholesale grocers of New York City are worth presenting. They may be indicative of these costs in the grocery field, and they may suggest a method of approach for other wholesale goods.

*The cost of handling small grocery orders is disproportionately large.* The table on page 394 shows that the cost of handling, expressed as a percentage of the value of the order, increases as the orders become smaller. It is nearly twice as great for the \$5 order as for the \$200 one. It is significant to note, in examining this table, that the increase in the percentage ratio is slight until the order drops below \$25.

<sup>1</sup>The Department is projecting a series of distribution cost studies, of which several have appeared.



**COST OF HANDLING WHOLESALE GROCERY ORDERS  
OF VARIOUS SIZES \***

Cost Items	\$5 Order	\$25 Order	\$50 Order	\$100 Order	\$200 Order
Buying.....	\$ .05	\$ .26	\$ .51	\$1.02	\$2.04
Selling.....	.23	1.22	2.31	4.62	9.24
Handling and shipping..	.17	.85	1.70	3.40	6.80
Delivery.....	.35	.58	1.01	1.76	3.25
General and administrative.....	.39	.75	1.43	2.61	4.56
Total.....	\$1.19	\$3.66	\$6.96	\$13.41	\$25.89
<i>Total as percentage of value of order.....</i>	<i>23.80</i>	<i>14.64</i>	<i>13.92</i>	<i>13.41</i>	<i>12.94</i>

\* Based on figures obtained from a leading New York wholesale grocer.

The average order for this company in 1927 was \$37. This size of order can be handled at a cost of 14.19 per cent of its value. This is slightly more than 1 per cent above the cost of handling a \$200 order. But, if this "average order" results from handling a very large number of orders of about \$5 and a few orders for large amounts, the average as a basis for determining costs is very deceiving. This is additional evidence that wholesale grocers, as others, having a wide range of sizes in orders may profit by classifying their orders in such a way as to determine what proportion of them are in high groups.\* If the proportion is large, they may

\* A case is reported by the Service Bureau of the Metropolitan Life Insurance Company of a wholesale grocer who has determined that orders for less than \$10 will not cover sales cost, not including warehouse, delivery, and office expense. See its *Bulletin* on "Reducing Selling Costs among Wholesale Grocers," p. 7.

find certain devices for lessening the proportion of such orders or for passing on the cost of handling them, a wise addition to sales policy.\*

The conclusion is inescapable that the trend toward the transaction of trade in small orders and small shipments has brought added costs. The closeness with which a rise in cost follows a decline in the size of orders varies from industry to industry. Moreover, in certain cases, at least, the order may decline from a very large one to one considerably smaller before any pronounced change in cost per unit takes place. If a decline continues, however, there is a point at which a sharp increase in cost occurs.

Many of the easy generalizations which writers have made as to the activities which give rise to added costs as orders decline in size are not supported by the study. It costs many businesses more to secure orders, but not all concerns are so affected. A few have found a way around the difficulty; and in certain industries, of which the canning industry is one, the manufacturer feels little or no extra cost of selling, as he sells through brokers, and brokerage fees are typically on a unit basis for all orders.

\* An analysis of wholesalers' operating costs in four fields based on the average gross margins and the average expenses for orders for a variety of products indicated that orders of the following sizes were necessary to "break even":

Electrical .....	\$24.94	Automotive .....	12.86
Hardware .....	16.07	Drug .....	13.68

*Harvard Business Review*, October, 1928, p. 20.

The change per unit in shipping costs also varies widely among industries where orders are all typically less than a carload. Changes in these smaller sizes make comparatively little change in cost per unit, but when orders that have typically been carloads fall below that quantity, shipping costs jump upward.

Office costs are perhaps those which most certainly increase as orders decline. This is due to the comparatively flat expense per order for such work as recording and billing regardless of the value per order.

In general, it is certain that doing business in "small orders" adds to society's expense of operating the industrial machine.

Are the added costs of small orders passed on? This question is the first one that arises when one realizes the costs involved in them. It would not be difficult to make a theoretical answer to the question at this point. But it will be better to approach the question more realistically. How are sellers actually meeting the small order problem? Do the methods they employ enable them to absorb added costs? Are they distributed among several agencies? Does better organization dispose of them? A discussion of these questions finds a place in the next chapter.

## CHAPTER XXI

### THE INCIDENCE OF SMALL ORDER COSTS

Like most other changes in economic arrangements, the mounting costs resulting from an increasing proportion of small orders were not quickly recognized by those most involved. Indeed, there are many concerns that are not yet aware of the extent to which small orders have become a larger part of their total, or of the added costs, if any, to which such small orders give rise. As has been indicated in earlier chapters, the problem is one which varies greatly among industries and among particular businesses, and it is not strange that it has not been analyzed in every instance.

The immediate incidence of increasing small order costs is chiefly upon the seller. He does nothing to meet an unrecognized difficulty. Old prices are maintained; old trade practices continued. The cost is absorbed not willingly but unknowingly. Indeed, as late as 1928 in reports on the question from 115 manufacturers, 38 of the 89 who reported a recognition of an increasing proportion of small orders indicated either that they were unaware of "added costs" or, if aware of them, had taken no action to meet them. A considerable proportion of these, however, stated that they recognized the problem but they saw as yet no way of dealing with it.

Profit and loss statements first called the attention of certain companies to the fact that even with increasing

volume and with no change in gross margin, their net profits were declining. Those with adequate cost systems soon discerned that small order costs were among the causes of the difficulty. Through trade journals, conventions, and word of mouth, the dangers of smaller orders have been, and are being, broadcasted. The work of these agencies has been supplemented by the Department of Commerce and by trade associations.<sup>1</sup>

In the following consideration of the incidence of costs the discussion has not been restricted to the effects upon profits and prices. Some attention has been given to their incidence upon marketing structure as well.

*When a seller becomes aware of added costs, relief is usually sought.* A study of the efforts of many sellers suggests that one or several of the following conditions result:

1. The seller may continue to absorb all or part of the costs;
2. The seller may avoid the costs;
3. The seller may find a way to eliminate or reduce the costs;
4. The seller may find a way to pass on the costs.

Concerning the absorption of costs, it only needs to be added that this policy will not be followed knowingly unless it is believed that competition compels it. Many manufacturers and wholesalers report that competition does compel it, however. If profits have been small or at a minimum before and competition does compel it, there is reason to fear deficit and insolvency and a shifting of the incidence of the costs of small orders back to stockholders and creditors.

<sup>1</sup> Among the useful publications of the Department of Commerce in this field are a series of distribution cost studies.

Small order costs may be avoided. The simple and direct way to avoid them is to refuse small order business. Where such refusal has become the general marketing policy of a concern, it has become common to say that the company has adopted a system of "selective selling." Selective selling simply means that the manufacturer, wholesaler, or other vendor concentrates his sales efforts upon those customers or prospects who, he believes, can buy in a sufficient quantity to make the account profitable. Selective selling schemes of more or less rigidity have been adopted by many manufacturers and by some wholesalers. In certain cases a plan of selective selling eliminates certain whole territories from the sales program; more frequently, it takes certain towns from a company's books; still more commonly, it eliminates individual accounts; always it opens to question those customers whose orders are small.\*

\*It is natural that very frequently a small total volume of business and small orders go together. That a great many customers handle a very small proportion of the volume of business done has been made apparent by the investigation of distribution published by the U. S. Chamber of Commerce in 1928, in which eleven cities were studied. The following, presenting the situation in one city, shows the percentage of independent store business which was done by the 20 per cent having the largest sales:

	Per Cent		Per Cent
Women's clothing .....	47	Men's clothing .....	59
Gasoline and oil .....	48	Furniture .....	61
Dairy and poultry .....	51	Meat and fish .....	63
Drugs .....	52	Boots and shoes .....	65
Confectionery .....	53	Jewelry .....	66
Grocery and delicatessen ..	55	Auto accessories .....	68
Restaurants .....	56	Dry goods .....	85
Office equipment .....	57		

There are numerous reports indicating that selective selling has enabled manufacturers or wholesalers to reduce the number of towns called upon, the number of salesmen required, and, as a result, selling expense.\*

**SHIFT TOWARD LARGER ACCOUNTS ACHIEVED BY AN ELECTRICAL MANUFACTURING COMPANY THROUGH THREE YEARS OF SELECTIVE SELLING**

**I. NUMBER OF ACCOUNTS**  
(As percentage of total)

Year	Size of Account					
	Less than \$100	\$100 to \$1,000	\$1,000 to \$5,000	\$5,000 to \$10,000	\$10,000 or Over	All Classes
1924.....	58.8	30.3	8.5	1.2	1.2	100.0
1925.....	53.6	34.0	9.2	1.4	1.8	100.0
1926.....	51.3	35.9	9.5	1.4	1.9	100.0
1927.....	34.9	47.4	13.0	2.2	2.5	100.0

**II. VALUE OF ACCOUNTS**  
(As percentage of total)

1924.....	2.1	14.7	26.1	11.8	45.3	100.0
1925.....	1.7	13.2	21.5	10.7	52.9	100.0
1926.....	1.7	12.4	20.0	10.0	55.9	100.0
1927.....	1.0	12.1	19.6	11.2	56.1	100.0

**III. AVERAGE SIZE OF ACCOUNT**

1924.....	\$24	\$346	\$2,167	\$6,947	\$26,143	\$ 708
1925.....	29	344	2,077	6,654	26,750	888
1926.....	32	403	2,045	7,186	27,503	988
1927.....	41	352	2,075	7,038	31,135	1,376

The experience of one manufacturer of electrical goods is indicated in the table on this page.\*

\*The experience of several companies is summarized by Guy C. Smith in "Selective Selling as a Means of Reducing Marketing Costs," Marketing Executive Series No. 5, *Bulletins* of the American Management Association.

\*Data were obtained directly from the records of the company.

This reduction of the proportionate number of small accounts brought about a corresponding increase in the average size of orders and shipments. The following table shows these averages.

Year	Orders	Invoices
1924.....	\$ 85.66	\$67.98
1925.....	106.84	77.44
1926.....	118.51	91.78
1927.....	112.06	80.00

The Department of Commerce reports a wholesale hardware firm which worked out:

A rough approximation of the cost of each sales visit which indicated that accounts which did not show purchases totaling \$600 per year were decidedly unprofitable.

One thousand four hundred thirty-two retail accounts were carefully measured against this yardstick. Nearly half of the accounts fell into the category of unprofitable business. The situation was explained to the retailers and overnight 700 accounts were taken from the books. The elimination of these accounts reduced the sales territory about 33 per cent. This restriction of sales territory coupled with a 30 per cent reduction in items carried decreased the volume of sales 33 per cent. The eliminated products included such heavy items as lead and oil, which ran into a considerable dollar volume but were not profitable.

After a three-year operating test in the restricted area with a reduced line it was found that the dollar volume of net profits had increased 35 per cent, while the relation of net profits to sales had increased 68 per cent. Operating costs were reduced by 4 per cent of gross sales below the average for similar firms in this particular field.\*

A second way of avoiding the costs of small orders consists in shifting to an entirely different class of

\* Millard, J. W., U. S. Department of Commerce, "Analyzing Wholesale Distribution Costs," *Distribution Cost Studies*, No. 1, p. 11.



customers than that served before—as when a manufacturer changes from retail customers to wholesalers. He has, as in the preceding case, avoided the costs of small orders by avoiding small orders. In this case, however, he avoids small order costs by a complete reorganization of his marketing relationships.

There has been a belief in certain quarters that the manufacturer's effort to avoid small orders was destined to mean a great revival for the wholesaler. It is, indeed, a force working in that direction. It is doubtful, however, if it is sufficiently strong to recreate wholesaling in anything like its old glory. It is offset by the fact that the chain store, the department store, and the mail order house are all large order buyers as well as the wholesaler, and are apparently outdistancing the wholesaler in other ways.

The elimination of at least part of the costs of small orders is sometimes accomplished. Where a concern, under the pressure of the added costs of small orders, is stimulated to an improved efficiency in its marketing arrangements or to an improved use of social equipment, the best solution of small order costs is found. Some companies have found it possible to eliminate in part the expenses of small order shipments through the establishment of branches or field warehouses—frequently rented space to which carload shipments are made for distribution to local points. Such a plan eliminates the expense of many direct small shipments from the home plant.

Although it is generally felt that the use of field warehouses has been expanded as a result of hand-to-mouth buying,\* the extent of this supposed expansion has not yet been subjected to any careful measurement. There are many instances reported, but instances of almost anything can usually be found. Illustrative is the case of a Western steel and wire company, which expanded its branch warehouses as follows:†

1920.....	14
1921.....	16
1922.....	24
1923.....	25
1924.....	32

In observing such cases, however, one must always be aware that other forces than hand-to-mouth buying may be involved. The company may have expanded its territory, or resolved to work its old territory more intensively, or relocated certain of its plants. In such changing conditions as those that at present make up our industrial scene, instances are more suggestive than conclusive.

Moreover, the establishment of branch houses may be a cause rather than an effect of hand-to-mouth buying. The manufacturer may establish branches not because it is necessary to retain business but because he believes he can use the faster service thus made possible as an attraction for more sales.

\* In answer to an inquiry made by *System* in 1927, 95 per cent of those replying, to a question in point said they had found it advisable to increase warehouse stocks.

† See Hubbard, Dana, "How Shall We Make Small Lot Buying Yield Extra Profits," *Printers Ink*, March 19, 1925, p. 110.

To the extent that there has been an increase in the use of branches and warehouses the public warehouse has been considerably involved. An investigator for the Department of Commerce writes:

With the tendency among retailers to buy in smaller quantities and increase their rate of turnover, the present day need of convenient merchandise warehouses to meet the demands of prompt delivery, to supply adequate quantities of goods to jobbers and wholesalers, has placed the merchandise warehouse as a permanent link in the distribution of all commodities throughout the United States.\*

But in this case, as in that of branch houses, the quantitative evidence of change is illustrative rather than conclusive. Certain it is that the warehouseman is becoming alive to opportunity in the situation. He is extending his services from that of a mere storer to include most of the activities of a wholesaler. He receives goods; he breaks pool cars, or straight carloads; he delivers in such units as are desired. In many cases he furnishes the storer with office space in which he can receive orders and direct delivery. In doing all of these things, he stimulates hand-to-mouth buying. He is working toward a new organization of trade relationships. His new activities tend to become a cause rather than an effect of the changed system. The costs of small order buying may be in part eliminated through such new organization.

Other very definite methods of eliminating costs through improved employment of social equipment are

\*Cricher, A. Lane, U. S. Department of Commerce, "The Merchandise Warehouse in Distribution," *Trade Promotion Series*, No. 15, p. 30.

the increased use of pool cars,<sup>9</sup> of carloading or forwarding companies, and of communicating services.<sup>10</sup>

In a majority of cases the reaction to the costs of small orders has been to attempt to pass on these costs to others. This is done by a special charge attached to small orders, or by an increased selling price for goods, or, at times, in other ways.

*A study of manufacturers shows great ingenuity in meeting the problem.* The 115 manufacturers, whose experience on various points we have frequently cited, reported on what was being done to meet small order costs. Fifty-one of the 89 who reported a small order problem stated that some action had been taken. Several companies had done a number of different things. There were reported 13 clearly distinguishable methods of dealing with the problem, a considerable number of which took several forms. If we take into account the major methods in the several forms that were reported, it is found that managerial ingenuity has worked out between 20 and 30 ways of attempting to deal with the matter. It will be worth while to outline briefly the 13 methods reported in this investigation, adding in each case a brief explanation and a word of comment.

<sup>9</sup> Although there is a general belief that the use of pool cars is rapidly growing there is a paucity of quantitative data on the subject. Reports on the matter for varying periods were gathered from twelve food canning companies. These show a definite increase in the use of pool cars from 1925 through 1927. However, the records available for years before 1925 suggest that a relatively small proportion of goods were shipped in pool cars in 1925, and that the practice was practically as extensive in certain years between 1920 and 1925 as it has been since.

<sup>10</sup> See Chapter XXIII.

1. Increasing the discount with the size of order or reversing the process by making a definitely higher price for small lots—30 cases.

Sometimes this is the ordinary quantity discount. Often it appears to take a form which can only be interpreted as a definite penalty for small orders. If an increased discount is given for large orders, the seller appears to be absorbing the costs, unless there are savings involved therein; if a higher price is charged for small orders, the cost is being passed on. If, however, the increased price causes a decline in purchases, the seller has been unable, partially or wholly, to pass on the cost.

2. Making a special handling or service charge for small orders—24 cases.

This remedy takes a variety of forms. In a number of instances a general charge, more often called packing charge than anything else, was reported. In other cases this charge is made only for broken packages. A third form this remedy takes is a minimum charge. Thus if an order is for less than a certain amount, the special charge is automatically levied regardless of the size of the order. Still other cases which are included in this group are special charges for drop shipments. A fifth form is where the purchaser is required to pay transportation on orders under a certain amount while transportation is paid on orders over a certain size. Some manufacturers reported that they made it a point to put this the other way around, emphasizing the fact that they will pay the transportation for orders over a certain amount which thus makes the practice appear to

be a premium for large orders rather than a penalty for small orders. One manufacturer reported that for orders under a certain size he entered on the invoice a charge for "parcel post and insurance" which is larger than the actual cost of parcel post and insurance and which, said he, "would be entered as parcel post, insurance and *packing* if we had the courage and if competitive conditions would permit it." This is clearly a case of attempting to pass on the incidence of costs.

3. Offering, or soliciting for, a more varied line—4 cases.

Some of these practices are very interesting. Some of them represent efforts on the part of the manufacturers to fit into the dealers' desire for smaller inventories. This is particularly true where we find the manufacturer changing his line so that he can sell his customer, not a large order of a single item, but a wider range of items. The total order may thus be made larger but the quantity of each kind of goods very much smaller. In one case at least, that of a feed manufacturer, where this policy has been adopted deliberately, the dealers are urged to buy carloads, but mixed carloads of the various goods sold. In other cases pool cars are urged. In still other cases the effort is made to sell a large order of many items by taking orders only in assortments.

Not the least interesting feature of these cases is the fact that they represent a lengthening of the line rather than a shortening of it, thus being out of accord with the trend toward simplification.

This method seeks to avoid the costs of small orders by an adjustment which makes it possible to secure larger orders than would otherwise be obtained. It is, however, quite different from the mere refusal to take orders. It is an attempt to eliminate the small order, so far as the particular seller is concerned, by organizing to obtain larger orders.

4. Changing the use of the sales force in solicitation—  
5 cases.

In using salesmen to meet the small order problem a variety of things have been done. Before doing these things there has usually been a preliminary study to determine what was wise to do. One well-known manufacturing company which sells a great variety of products has worked out a quantity which is the minimum order that can be sold at a profit. The committee working this out recommends that while the sales force should not be instructed to refuse orders for quantities below the minimum it should be informed as to the minimum quantity of the various items which will yield a profit, in the belief that salesmen will gradually cease to canvass prospects and customers who are not potentially buyers of the minimum quantity specified and that salesmen will strive to get orders of a desirable quantity.

In other instances the sales force has been definitely instructed to eliminate some customers. In still other cases the salesmen have been directed to increase the number of calls on the better customers and prospects. The number of reports of this method is smaller than might be expected in view of the generally prevalent talk of "skimming the market."

If carried out in an organized way, this method is avoiding small order costs through a selective selling plan.

5. Educating the trade to the desirability of larger orders—3 cases.

Two manufacturers reported that their only effort had been to try to show their customers the advantages of larger orders from the customer's own point of view. In one case this took the form of preaching to the customer the desirability of getting as many items as possible in each order, even if the quantity of each item was small.

This is an elimination of the costs of small orders so far as the seller in question is concerned. It is probable that in such cases there is a social as well as a private gain through the handling of business in more economical units.

6. Penalizing the salesman for small orders—1 case.

In this case the company concerned has a definite charge which is debited against the salesman of each order. Although the facts were not given, it is assumed that the salesmen are paid on a commission basis by this company and that, therefore, unless an order is of sufficient size all of the commission might be absorbed by this charge. If the order were large, on the other hand, the debit would be an insignificant part of the commission. This is clearly a case of passing on the incidence of cost—but passing it on to the salesmen, rather than to the customer.

7. Deferred dating plans—2 cases.



Two companies reported the installation of deferred datings as a method of getting their customers to place larger orders at a given time rather than to require salesmen to call repeatedly. It is not certain that those items in the added costs of small orders which are due to small *shipments* are eliminated by this method.

8. Refusing to handle small orders—2 cases.

Two companies reported that they had fixed a minimum below which they would take no orders under any conditions. These cases are a variety of the avoidance method. They differ from No. 4 above chiefly in the fact that in preceding cases the salesmen were the agency definitely involved.

9. Charging a larger gross profit—2 cases.

Indicating that the increase was against no particular item of cost of smaller orders, or orders of any particular size, two companies stated that they had increased the mark-up as a device for covering in a general way the increased costs which they found accruing.

These cases illustrate another way of attempting to pass on the incidence of cost. This method attempts to pass on the costs to all customers rather than merely to those who purchase in small lots, as is the case in Nos. 1 and 2 above.

10. Making use of branches and warehouses—3 cases.

Three concerns reported a material increase in the number of shipments from branches and warehouses. This type of action is perhaps better considered as a policy of adaptation to the increase in small orders rather than as a way of remedying the situation. Some

manufacturers, however, are finding in this practice a way of offsetting some of the costs which arise from shipping small orders.

As has been suggested earlier, it is possible that this plan may be a way of eliminating part of the costs that would arise if all orders were shipped directly to the customers from the home plant.

#### 11. Changing trade channels—3 cases.

In three instances there were reports of an increased use of the jobber or wholesaler. The manufacturers so reporting stated that they found a relief from the burden of small orders by concentrating their trade with jobbers, distributors, or wholesalers who purchased only in large lots. In at least one of the cases cited, a change from distribution through retailers to distribution through wholesalers was made before discussion of the small order problem became general. The company concerned, however, seems to regard the change as being a fortunate shift so far as this problem is concerned. These three cases of changed trade channels do not include the instances of increased use of branches or warehouses. Nor do they include two or three rather vague comments that the increase of small orders from jobbers has a tendency to make the reporting company look more favorably toward direct relationship with the retailers. This method of avoidance and possible elimination of certain costs of small orders has been discussed earlier in the chapter.

#### 12. Adopting new policies which aid small order buying—5 cases.

There were at least five reports showing that the manufacturer in question was definitely striving to fit into the small order practices of his customers. In two cases the action taken was to make a change in discounts so that smaller orders than formerly received the maximum discount. In another case a manufacturer strives to secure a commitment for a considerable quantity of goods but allows the customer to take out these materials in small quantities. At the time the original order is taken coupons are issued which are promises to deliver the goods. The manufacturer carries the inventory and sends the goods out at such times as will give the best service to the user. A shoe manufacturer reports that he has met the situation by a stock department "which is by far the largest and most adequate in this grade of merchandise that is carried by any manufacturer in the world. Nearly 50 per cent of our business is done out of stock." This manufacturer makes an additional charge for small orders of one to three pairs.

13. The "control" of dealers' inventories—3 cases.

Probably the most constructive effort to fit into small order buying is found among those manufacturers who have definitely attempted to take over the inventories of their customers.<sup>11</sup> These plans of controlling dealers' inventories are not only the most constructive from the standpoint of the seller, but are the most suggestive of possible trends in merchandising. They are clear cases

<sup>11</sup> One of the most completely developed plans is that of the Gotham Silk Hosiery Company. It is explained at some length by R. E. Tilles in the Metropolitan Life Insurance Company, *Executive Service Bulletin*, April, 1929.

of a tendency to integrate control of the production process even though the financial responsibility has not been concentrated. They are definite examples of the movement evidenced prominently by chain stores to reduce the importance of the judgment of the retailer and to make him more nearly a mechanical unit in the planning of the manufacturer. This is by no means necessarily a criticism of the system. From the viewpoint of economy, it may well be that it is far better to concentrate planning in relatively few centers. On the other hand, it is arguable that the distribution of planning is more important than the most rigid efficiency. Whatever the "rights of the matter," it is one of the many examples in modern merchandising of the gain of engineering ideals at the expense of private enterprise. (For a more general discussion of this point see Chapter XXIII.) If society were ever to attempt to apply engineering methods and standards to our national system of production and distribution, however, it would find many suggestions in the experience of such companies with inventory control.

*Canners generally have not succeeded in passing on the added cost of small orders.* At least this is the conclusion that must be drawn from their own report on the matter. Of 30 vegetable canners reporting, 25 replied that they had not found a way of passing on the added costs of small orders, and only five reported that they undertook to pass on such costs. Of eight fruit canners six reported that they were unable to

pass on the added costs." The methods used by those canners who attempt to pass on costs are chiefly three: (1) Higher prices are demanded for small lots; (2) discounts are given for large orders (which if applied to all orders of above a certain size would be only the obverse of No. 1); and (3) service charges are made. An actual service charge was reported in only two instances, 28 companies stating flatly that no such charge was attempted."

The attempt to get a higher price for small orders is much more common among canners than the belief that they succeed in doing so. Fifteen out of 30 vegetable canners replying to a question on this point indicated that they have undertaken to secure a higher price for small lots, but many of them followed this statement with such comments as: "Competition prevents us from doing," or, "We do not succeed even though we try," or, "It is pretty difficult to get a higher rate on small lots."

The added cost for freight for small lots is one item which is always passed onward by food canners. It is

"There were ten vegetable canners and two fruit canners who, though answering other questions fully, did not reply on this point. It is probably reasonable to conclude that they have not found a way of meeting the problem.

"That a service charge for small orders is, at least in some sections, more common than these returns indicate, is suggested by the following:

"The Wisconsin Canners' Association, which met in Milwaukee in November, went definitely on record favoring a 'service charge' on shipments of peas in less than carload lots and issued a 'warning' to wholesalers about economy in methods to meet chain store competition.

"The Association passed a resolution to lay before the National Canners Association the proposition of charging 5¢ per dozen as a 'service charge' for less than carload lots of peas."

*Canning Age*, January, 1928.

the practice of the trade for the consignee to pay freight;" the added cost of less than carload shipments therefore reaches the canner's customer in every small order instance. The comparative costs for shipping canned goods in carload and in less than carload lots as reflected by the actual rates reported by the concerns covered by the study is shown in the table on page 388. In considering the effect upon dealers and thus, possibly, upon consumers of this added cost, however, one should also note the charts on pages 114 through 157, which show the approximate proportion of the volume which moves in less than carload lots.

*The packing industry has been advised to "take measures" concerning small orders.* The Institute of American Meat Packers, following a study of small orders and their costs in the packing business, includes the following among its recommendations to packing house sales executives: "

1. Salesmen should not be urged or permitted to solicit trade of such character as is known to promise an unsatisfactory total volume of business, or unduly small individual orders.

2. Emphasis should be removed from the mere addition of new accounts to the salesman's list and placed instead on the development of *profitable* accounts.

3. When solicitation of a new customer is contemplated, a rough computation should be made of the prospective sales volume and margin expected to be secured,

"Every canner reporting on "who pays the freight?" answered "the consignee," regardless of the size of shipment involved.

"Greer, Howard C., Institute of American Meat Packers, *The Cost of Handling Small Orders and Accounts*, pp. 20-22.

and the anticipated expense of serving the account. (A formula for such calculations was outlined.) If the relation of the expected margin and handling cost is unsatisfactory, the account should not be solicited.

4. When a prospective customer has been solicited actively for a reasonable period of time and the account shows no signs of developing into one which will provide a reasonable volume, solicitation should be discontinued and the salesman's efforts directed into some other channel.

5. A differential scale of prices should be adopted by each company individually, the basis being the relative size and handling cost found to apply to the account in question in that particular company or branch.

6. Serious attention should be given to developing means of handling such small orders and accounts as are unavoidable by some means which will hold the costs of this business at a minimum.

*Wholesale grocers report methods of dealing with small orders which are similar to those employed by manufacturers.* Forty-five replies from members of the National Wholesale Grocers' Association to a question as to how to meet small order problems, were distributed as follows: "

	Number
Educate the purchaser .....	13
Co-operate with customers on merchandising policy	3
Educate salesmen .....	9
Give bonus to salesmen for orders above a certain size	1
Compensate salesmen with a commission on gross profits .....	1

---

" For the opportunity to tabulate these replies from the original data. I am indebted to M. L. Toulme, of the National Wholesale Grocers' Association, and Arthur Lazarus, of the Metropolitan Life Insurance Research Bureau.

	Number
Have salesmen call less frequently .....	6
Give quantity discounts.....	1
Deal with no customer whose total account is below a certain minimum .....	2
Deal with fewer houses (this evidently was meant as a form of selective selling) .....	3
Accept no orders below a certain minimum .....	6
Total .....	45

Not all of these reports were of practices actually engaged in. It is evident that in many cases they represent plans which the reporting wholesalers were considering. Other suggestions which wholesale grocers made as ways of escaping increasing costs of small orders included the following:

"Cease financing inefficient dealers."

"Cut out this continued harping on stock turnover."

The elimination of general stores.

Fewer wholesale grocers.

It is obvious that all of these suggestions and methods fall into one or another of the classes of methods described earlier in this chapter. Where wholesalers do not absorb the costs, they strive to find ways to avoid them, to eliminate them, or to pass them on."

"That other wholesalers are making an effort to pass on small order costs is exemplified by the activities of the National Hardware Association. A committee appointed by the Hardware Council to investigate the problem of small orders included the following among other recommendations:

"That all wholesalers have their salesmen explain to retailers the added costs connected with small orders and the wisdom of placing such orders only as necessary.

"That the manufacturers make an additional charge of 5% to 10% for direct shipment of goods which the wholesaler should carry in stock.

"That when, in the opinion of the manufacturer, any wholesaler's direct shipment orders, or other small orders, become excessive in number, such wholesaler be informed that unless the practice is curtailed all invoices thereafter will be at sufficiently higher prices to compensate the manufacturer for the additional expense incurred in handling such business."



*Evidences of an effort to pass on small order costs are found in many other types of business.* They are by no means limited to manufacturing and wholesaling. An increased rate for "an order" to haul a less-than-carload shipment as compared with carload shipment has long been charged by the railroads. The widespread banking practice of making a service charge where accounts are small is an example of the same phenomena. Nor have the stock market and its "commission merchants" failed to feel the need of adjustment. The following excerpt from a broker's letter to clients in February, 1929, is typical of an action which became widespread among brokers in the earlier part of that year.

From and after March 1, our minimum commission charge on security transactions for individual accounts, with exception of transactions in rights and partial executions of round lot orders, will be \$5.00 per item. Our experience has indicated that any smaller minimum results in handling orders at a loss, a condition which is economically unsound and means that in the long run the small lot buyer cannot get the service which he expects. Recent conditions seem to have directed general attention to the fact that minimum commission charges hitherto prevailing are insufficient, which has resulted in a widespread movement to increase them to a proper figure.

A prominent Eastern broker states that the amount of his business which would have been affected by such a ruling has grown rapidly during the past few years and that when such a charge was imposed early in 1929, 35 per cent of the total number of trades were affected by it. He believes that 20 per cent is a more common figure for brokerage houses, however.

*The Wall Street Journal*," in commenting on the spread of a minimum commission charge, says:

Behind the plan of the minimum commission charge is the overstrain and burden put on clerical forces of brokerage offices by the unusually heavy trading in odd lots.

Odd lots do not go through the clearing house and for that reason there is greater amount of work and more cost in transferring and handling a ten share order than one for a hundred shares.

*Conclusions.* In the period of rising costs resulting from small orders, through which we have been passing, the vendors were first to feel the edge of the new situation. As awareness of the situation grew, efforts to deal with costs took on the forms that have been indicated in this chapter. Vigorous efforts are being made to avoid small order costs, partially or wholly to eliminate them, and to pass them on. It is chiefly in the first and second types of effort that sweeping changes in marketing methods, which are having far-reaching effects on general structure, are being adopted.

In the changes that result there is added strength for the chain store and probably an added weakness for the small dealer. The wholesaler may stand to profit, particularly if strategically located at an important car breaking point. There is reason to believe that the public warehouse will gain, and it is practically certain that the specialist in carloading and forwarding is rising to a new prominence.

To the extent that methods of "passing on" costs are employed—and it is considerable—the incidence of the

added costs of small orders tends to reach the consumer. There is no doubt that the consumer is at present affected by such costs. Two facts must be remembered, however. First, there are great compensations in other elements of the system of which small orders are a part, particularly in the matter of the lower stock burden. It is more than probable that these compensations more than make up for the costs added by smaller units of trade. Second, the added costs—to a large extent in some industries—are the result of the peculiarities of freight rate structure. If the differences between carload and less than carload rates should disappear, the apparent added costs of small orders would be greatly affected. This, of course, is far from saying that the cost to society would go. If the present difference in carload and less than carload rates represents an actual difference in costs of carriage, it would only mean that the incidence of the cost would fall on the carriers. If the difference is too great, the carriers are at present profiting from small order shipments; if too small, they are sharing the cost.

The problem for society is the determination of the size of unit which for each type of goods is the most economical to handle under the varied circumstances of trade and the devising of a method of determining the reward necessary for having goods handled in units of those sizes. There is reason to believe that competition is not a wholly satisfactory method of determining this most economical size of unit, or of ascertaining a reasonable compensation; there is reason to believe that no other method yet suggested would be wholly satisfactory.

**PART IV**  
**THE PERMANENCY OF THE NEW**  
**CONDITIONS**



## CHAPTER XXII

### ARE THE NEW CONDITIONS NEW?

Every attempt to look ahead is necessarily an undertaking to project a line into the future by considering the past and the present. To this rule a forecast concerning hand-to-mouth buying is no exception. If the phenomena called hand-to-mouth buying are so new that the past contributes nothing by which the future may be foretold, we must depend upon the present alone. But to determine whether the past can make a contribution, its record must be examined. In this chapter, therefore, we shall consider the past, asking first whether the conditions so commonly believed to have originated in the price collapse of 1920 are really new. If we find that hand-to-mouth buying is not new, we must note how frequently it has occurred, the conditions of its occurrence, and the causes to which it has been ascribed. In the next and final chapter we shall consider the present direction and intensity of the forces which our study up to that point has led us to believe are important in causing hand-to-mouth buying. On the basis, then, of the past and the present we may make some estimate of the future.

What then of the past? The limitations of trade statistics make it impracticable to carry quantitative methods very far into history; but by utilizing the

records of trade reporters, it is possible to study the attitudes and buying practices of merchants for many years. The reported attitudes and activities in several trades over long periods have been examined. What light do they throw on the question: Are the new conditions new?

### I. A NINETY-YEAR RECORD OF DRY GOODS BUYING PRACTICE

The trade reports in the dry goods industry were examined for the period 1839-1927.<sup>1</sup> This study shows clearly that hand-to-mouth buying is not new and that there is much in the past which points toward possible practices in the future.<sup>2</sup>

*More than 75 years ago the symptoms of hand-to-mouth buying were accurately described and were attributed to developments which are believed to be important today.* In the year 1850 the reporter for *Hunt's Merchants Magazine* penned the following statement:<sup>3</sup>

Of late, the use of the telegraph, and the increase of railway communication, has served to prolong transactions through the year.

The dealer can order goods, and receive them by express in almost any period of the year. The business, therefore, is now

<sup>1</sup> For the period 1839-1865 *Hunt's Merchants Magazine* was used as a source. For the period 1866-1927 the source was *The Commercial and Financial Chronicle*.

<sup>2</sup> The writer first pointed out the antiquity of hand-to-mouth buying in an address before the National Cannery Association in January, 1928. Much of the data used here was presented at that time. See *Canning Age*, Convention Digest, 1928, p. 215.

<sup>3</sup> This comment is indeed difficult to distinguish from many that were written between 1921 and 1928. The year 1850 was regarded as a prosperous one; was it "profitless prosperity"?

more distributed throughout the year, and there is no time when, as formerly, the dealer might say that his business is entirely quiet.

Reports of what is less clearly hand-to-mouth buying but in which hesitation as to forward commitments and cautious purchasing is cited appeared many years before. The earliest noted was the comment of the market observer in the dry goods trade, expressing himself as follows in 1839:

But at present we feel ourselves called upon to say that prudent merchants will husband their resources, be chary of their means, and extremely cautious in their commitments for some time to come.\*

In 1843, there appeared the following:

The dealer, aware that the only means in his power to meet the obligations [for his purchases] is by making cash sales to a corresponding amount, becomes careful not to buy more than he thinks he can sell.

[The difficulties with the banking system had been mentioned just before as a cause of hesitant buying. The early part of the year had been one of depression; there was revival in the latter half. Author.]

*In the period from the close of the Civil War through 1870 there were experienced the same trade phenomena which were experienced between 1918 and 1928. They were given very modern explanations. In 1865, immediately at the close of the war, prices were firm, and there was a scramble for goods not unlike that of 1919. On July 8, 1865, for example, the following report appeared:*

Commssion houses have but to receive, charge, and distribute their goods as they reach the market, fixing their own prices, the jobbers being only too glad to get them.

\* Excepting for the opening months, 1839 was a year of recession.



Almost immediately there was an evidence that high prices may retard trade; that hand-to-mouth buying can be brought about by inflated values. In reading the reports, one is reminded of the buyers' strike of 1920. On July 29, 1865, one reads:

The high prices of the past few weeks have been adhered to with such tenacity that trade has fallen off.

Buying was fitfully good, then again feeble during the autumn. In November, 1865, a comment was made which might as easily have been written in 1921:

Buyers keep in mind the panic of last spring and consequently purchase only for their immediate wants.

On March 17, following, the small order evil is stressed by the reporter who declared:

But few goods are bought, and those only at the moment needed, and forwarded by express. It is said that the express companies were never before doing such a business as at present in parcels of goods of all descriptions.

With the coming of 1867 the definite trend toward hesitant buying became even more marked. Nearly every week's report was in a vein similar to the following:

Jobbers as well as retailers decline to buy more than is necessary for immediate wants.

Buyers take only such goods as their immediate wants require.

The demand at this time is confined to the small lots necessary for immediate needs.

There was slightly better business done during 1868, but reports of cautious buying were constant. Buyers

were said to hold aloof and restrict their purchases to small orders. Trade, as reported on November 1, continued to be restricted to small orders to replenish broken stocks.

*In 1868 the actual phrase "hand-to-mouth" was used in the dry goods trade. Repeatedly during that and the next two years are found the type of comments which have been so common in the current period. Says a comment on August 1, of 1868:*

Dealers feel indisposed to place any orders for goods which are not needed for immediate requirements; and it is generally presumed that this hand-to-mouth policy will rule among the trade until the new cotton crop comes on the market and gives some greater degree of stability to quotations.

In 1869 it was again discovered that improved transportation was making possible lower inventories and more frequent purchases. On September 4, of that year, the following statement was made:

The greatly improved facilities of transportation enable them [the dealers of the country] to place goods in their own stores much more rapidly than heretofore. And also . . . the whole tendency of the past few years' experience has been such as to make buyers very anxious and inclined to postpone purchases until the goods are absolutely needed.

In 1869 the phrase "hand-to-mouth" was again used. But, more important, it was pointed out that the sellers of the central markets might look to a new order of things in which business would have less pronounced peaks of buying but more steady flow through the year—a new stabilization. Said the reporter on October 30, of that year:

As it is, we can only look for a current demand from country buyers to keep to their stocks; and while our city buyers miss the great rush of activity which formerly came in August and early September, they will find now a more steady demand prevailing during the balance of the season, because the uncertainties of business and the fluctuations of prices have led to a general hand-to-mouth business throughout the country, *and this necessarily requires that purchases in this market shall be kept up with more or less regularity throughout the year.*

The annals of the year were closed with the comment that the principal business was being done by mail orders for goods required to keep up assortments and that trade was almost entirely limited to small purchases.

In 1870 a comment is made which is particularly like those which have been made since 1920 and from which one might infer that the reporter believed that "modern improvements" had made hand-to-mouth buying an established practice. He writes on July 16, of that year:

The rapid means of conveyance to all parts of the country and the very low freight rates enable the interior merchants to take advantage of any reduction in prices *and prevents the necessity of carrying large stocks at any time*; the low rates of telegraphing also enable them to fill in orders for goods not on hand rapidly and without great expense, a way of doing business which is now largely increasing.

The period just described was one in which manufacturers, their sales agents, and jobbers might well have been disturbed. Excepting for a short time of excitement at the opening, prices were declining. Moreover, the transportation facilities of the country were

expanding at a great pace (railroad mileage more than doubled during the eight years following the Civil War), opening new markets, upsetting old trade adjustments, cutting costs of delivery in ways with which people had no experience, and all under a system of *laissez-faire* and competitive rate-cutting far less stable than the system which we have today. Certainly the troubles of sellers are not new, but the merchants of those days had certain difficulties which have been in considerable measure surmounted. Before the National Banking Act in 1863 the instability of the banking structure as a cause of hesitant buying brought comment from the market reporters. Following the Civil War there was, among other troubles, paper currency, the uncertain value of which was a strong force tending toward small orders and commitments not far in advance. Stable money and a firm banking structure are now so taken for granted that we scarcely realize the contribution which these have made towards business stability.

*The practices which we call hand-to-mouth buying were the rule rather than the exception in the dry goods trade from 1865 to 1897. The period 1865-1870 has been described in sufficient detail to need no further discussion, and it is perhaps unnecessary to give for each year the comment upon which this general conclusion is based. There were, however, between 1865 and 1897 only a few periods when good forward buying was reported. That hand-to-mouth buying was temporarily abandoned and that merchants were commit-*

ting themselves freely in the dry goods trade is well evidenced only at the following times:

The fall of 1871 and the year 1872,  
At least the first half of 1880,  
The latter part of 1886,  
The month of August, 1897.

In 1871 and 1872 the country moved from a state of serious business depression to one of prosperity and widespread activity with an advance in commodity prices. Again in 1880 the country had grown from several years of industrial stagnation into a period of prosperity with firm and advancing prices in the cotton industry. In 1886 there was likewise a year of revival from the depression of 1883, 1884, and 1885. In the middle of 1897 a revival in business was under way. More important than the general business revival, perhaps, were the advancing prices in that year, specifically in the cotton textiles market. This was the beginning of a change in the general trend of cotton goods prices which was downward from 1865 until that year.

*Forward buying has been more common in the dry goods trade since 1897 than before.* It is reported in significant amount in February and March of 1899, a period of prosperity with firm or advancing prices in dry goods. There was a noticeable spurt of buying activity in the fall of 1901, apparently influenced by advancing prices in dry goods. In 1907 heavy advance purchases were reported until September; during all of this period prices were firm or advancing; and the

country generally was prosperous. With the money panic of the autumn, however, buying attitudes changed abruptly. In 1912 and the first part of 1913, during a period of prosperity, and accompanied also by firm and advancing prices in dry goods, there was activity in forward buying. Frequently reports were made that buyers were covering future needs and that sales were expanding. Manufacturers in 1912 appear to have been caught somewhat short of the demands of their customers. In 1913 manufacturers were unable to satisfy their buyers but curtailed their activities, fearful of impending tariff legislation. It was apparently a year of *hand-to-mouth manufacturing* of dry goods. In 1915, again with advancing prices and general prosperity, buyers began to make purchases freely. They bought freely also in 1916, in the latter part of 1917, and the early half of 1918. This was perhaps the longest stretch of continued vigorous forward buying in this industry in the whole period examined. With the close of the war, great conservatism in commitments became the rule; but beginning in the middle of 1919 and lasting until the spring of 1920, buyers struggled wildly to get goods. From the spring of 1920 hand-to-mouth attitudes prevailed until the fall of 1922, when there came a recurrent note of better forward buying. This activity lasted into the early part of 1923, then became more quiet, reviving slightly in the fall. While 1924, 1925, and 1926 were again years of hand-to-mouth buying, comments were rather frequent in the spring of 1927 that "demand has been increasing," that

"mills are well sold ahead," and that "commitments providing for future requirements are very satisfactory." In the fall of 1927, however, hand-to-mouth buying was again generally reported.

Certain facts stand out from a study of trade comment in the dry goods industry:

1. The phenomena which we call hand-to-mouth buying have been the rule rather than the exception in the dry goods trade since 1865. They have existed to considerable degree in every period of general depression and decline of prices *in the industry* but have by no means always disappeared in periods of comparative prosperity. The period 1865-1899 was one of more continuously conservative buying practice than the period since 1899. The former was a period of downward price trend, the latter of rising prices, until 1921.

2. The causes to which hand-to-mouth buying in the dry goods trade has been attributed include unsound money, weak banking structure, prospective tariff changes, improved railroad service, low freight rates, improved express service, improved communication, extremely high prices, falling prices, and the threat of falling prices.

3. The more speculative buying of the twentieth century rose rapidly to a climax in the years 1915-1919. Futures buying has occasionally been reported to be "good" since 1920. It was so reported in the fall of 1922, and in the spring of 1927.

## II. THE RECORD OF SHOE BUYING

Market attitudes and practices in the shoe trade were studied from the middle of the seventies through 1927.

*The conditions which we call hand-to-mouth buying were worrying manufacturers and jobbers in the shoe trade more than half a century ago.*<sup>4</sup> On August 6, 1874, it was reported from Philadelphia:

Shoe dealers have given their orders only for such goods as are most saleable, or for just enough to supply the wants of their customers; but in the meantime, should circumstances alter the present state of the market, they will duplicate in larger amounts.

On August 20, a similar comment was made:

Country buyers are not buying heavily just now but are confining themselves to small lots.

Again, on August 27:

Buyers are few . . . and, as reported, are not overly anxious to place their orders over *what they actually want*.

*Present season has been noted for small size orders.*

In 1874 we find "shoe styles" advanced as a cause of such hesitant buying. For example, in the report on August 6, of that year, from Boston:

There are so many different kinds that the buyer has to purchase sparingly of each, until he finds out by sending off his runners which style of them will take.

As the fall advanced we find present other phenomena familiar in the present hand-to-mouth era. Again from Boston came the report in September:

Our buyers are doing well; their customers *are buying little and often*.

<sup>4</sup>The data cited are comments secured from *The Boot and Shoe Recorder*.



In October from New York was the report:

Good business *in sorting up orders*.

In 1875 hand-to-mouth conditions continued. In January it was reported of the New York market:

The fact must be in mind that no more goods will be bought than required, and retail dealers are not going to purchase stocks ahead of their actual requirements.

Philadelphia reported in February:

Dealers are not buying heavily but cautiously.

New York reported in the same month:

They have bought sparingly of such goods as they are certain to require, but there is a notable absence of speculative purchases.

Frequently through these comments, in 1875, one finds the statement that *mail orders are common* and believed to be increasing. And in the spring of 1875 we were told that the *technique of manufacturing shoes* had so improved and that *business had become so spread through the year* that buyers might feel justified in proceeding with caution. It was reported in Boston, for example, that:

Few are inclined to risk the carrying of much stocks, particularly when, by the use of the improved machinery that is possessed, a year's requirements can be supplied in six months.

And in New York:

Stocks in warehouses are not heavy, for this time of year, but then the demand has become so scattered or rather *distributed through so much longer a time* that it is not necessary to lay in such heavy stocks as were formerly required at one time, as any specialty can be renewed in a few days' notice.

So the comment ran replete with all, or nearly all, of the phrases with which we have become familiar in the past few years: "Purchases are confined to actual requirements." "Buyers are making their purchases cautiously." "Sales are largely composed of assorted lots . . . . often being obliged to break cases. . . ."

And the cry of overproduction was raised. In May of 1875, one finds the comment from Boston:

The manufacturing of boots and shoes is so much overdone that it would seem now time to put a stop to overproduction.

Moreover, the efficient conditions which transportation had reached left little to be desired, for as a New York comment said:

The dealers in the interior seemed determined to purchase no more goods than they absolutely need and depend upon the quick facilities of transportation to keep their stocks up to the mark by frequent small orders.

Again in the spring of 1876 we read:

The facilities of transportation make this manner of doing business much more feasible than formerly, causing dealers, as a report of the same month said, to buy just enough goods to see them through *from week to week*. Indeed in the summer of 1876, we find the statement:

Buyers do not call on warehouses as formerly, but *generally* order by mail as goods are wanted.

*The phrase "hand-to-mouth" is at least 50 years old in the shoe trade.* Conditions appeared somewhat more satisfactory to manufacturers in 1877, but it was in August of that year that from Boston came the report:

The drummers are sending in small orders. Some manufacturers seem to think that the western buyers will purchase what they need through the fall in a hand-to-mouth way.

*Buying in the shoe markets from 1874 through 1898 was much more commonly hand-to-mouth buying than forward buying.* The periods when any considerable forward buying was being done are comparatively few. It was reported in the shoe markets in appreciable degree only in the following periods:

The autumn of 1876,  
The latter part of 1879 and the first quarter of 1880,  
August and September, 1882,  
August and September, 1888,  
The summer and autumn of 1890

In all other periods there is complaint of "hesitation," "no futures," "immediate need only," "hand-to-mouth buying." During the periods of forward buying we have comment much like that which existed in the period between 1916 and 1921. In August, 1879, for example, one finds the report from New York:

Orders are coming in earlier than last year and for large lots; buyers seem to be making their purchases now in anticipation of an increasing price later in the season.

And again from New York in September:

Sales up to the present show a marked increase over those of a corresponding period of last year.

And from Boston:

From all sections of the land the report comes that we have entered fully into a season of permanent prosperity.

And again from Boston in November, 1879:

The spring trade has opened with vigor and in all various branches some very large orders have been given.

In 1880 there appeared similar comments. From New York, in January, came the statement:

Dealers are making their contracts much earlier and for more extensive lines than they have heretofore been in the habit of doing.

A little later Philadelphia reported:

Orders from the salesmen are for much larger lines than was expected.

And in February it was reported from Boston:

Not for many years, if ever, have there been so many orders in the hands of manufacturers that are as yet un-made as at present.

*Forward buying as opposed to hand-to-mouth buying became the common rule in the shoe industry beginning about 1899.* There were slight intimations of better buying in 1898, but on the whole the outbreak of the Spanish-American war seems to have had little effect. For the most part the reports of that year indicated numerous orders for small lots and for immediate delivery. But in 1899 a different tune began with spring sales. "The season has been prolonged," we were told in April. And a little later:

Orders have come in earlier than usual for fall goods.

By the middle of the summer of 1899 we find the comment:

Some manufacturers are literally buried in orders.

The year 1900 showed a very much more conservative feeling in the trade, but in 1901 everyone was again flooded with orders for future shipments. From this time on there are comparatively few years when good

buying ahead is not reported at least in certain months. An exception is 1906, as is also 1914, but in every other year from 1900 until 1921 forward buying occurred.

The period from 1900 until early in 1920 was a period of almost continuously advancing prices for shoes. There were slight declines in certain years, but during the period as a whole there was a strong swing upward. From 1900 to 1916 the rise was slow, but in 1920 it reached a point higher than any at which shoes had sold for 60 years. From 1912 the advance in prices was rapid and from 1916 until the break incomparable to anything since the Civil War.

The conclusions which may be drawn from the past of the shoe trade are for the most part similar to those reached from the survey of dry goods; yet there are some differences. The conclusions may be stated:

1. It is clear that hand-to-mouth buying of shoes, as of dry goods, is not new. It has been a recurrent phenomenon, being the rule rather than the exception prior to 1899 and becoming the exception thereafter.

2. While hand-to-mouth buying in shoes has been attributed to many of the causes noted earlier—prospective and real price declines, quickened facilities of transportation, better communication—certain other causes are given as important. These include fashions and an improved technique of manufacture, making it possible to make the product in “shorter order” than ever before and promising a new stabilization in production. The practice of mail ordering seems also to

have been a more important influence in this industry than in the dry goods trade.

3. Study of the two trades demonstrates that hand-to-mouth buying must be regarded as a phenomenon of a particular industry as well as of general business. In 30 odd years of cautious buying preceding the turn of the century, good forward buying was frequently exhibited in one trade when there was no report of it in the other. There was noted good forward buying as follows:

IN SHOES	IN DRY GOODS
Autumn of 1876	
Latter part of 1879	
First quarter of 1880	First half of 1880
August and September, 1882	
	Latter part of 1886
August and September, 1888	
Summer and autumn, 1890	
	August, 1897
	Spring, 1899
Summer, 1899	

4. Certain changes in the organization of the shoe trade are remarked during the years considered. It was the jobber to whom the manufacturer formerly turned more largely for his orders and whose hand-to-mouth tactics disturbed him. It was the jobber in turn who was worried by the procrastinating purchases of the country merchants. The jobber is less important now than in an earlier era. A larger percentage of shoes are sold by the manufacturer directly to the retailer. To what extent this change is due to change in the size of manufacturing plants; to what extent it results from the efforts of manufacturers to push their own brands through

advertising, and their strivings toward better control of their market; to what extent it is due to the increased importance of mail order houses and department stores as shoe vendors, shoe manufacturers are reasonably able to judge. The net effect, however, is to make hand-to-mouth buying an easier problem for the manufacturer. It may be true that he can no longer find jobbers who may be beguiled into carrying stocks, but there never were jobbers who would do that satisfactorily when they anticipated price declines. Where jobbers did find themselves loaded with overpriced merchandise the manufacturer could hardly hope to profit by the demoralized market that resulted. In making the nice adjustment to purchases, that are called for under conditions of hand-to-mouth buying, the manufacturer gains by being as close to dealers as possible. In selling direct he is at once better able to sense demand and to influence it.

### III. CHANGES IN BUYING PRACTICES IN CERTAIN OTHER TRADES

The discussion of the order basis for steel, canned foods, oak flooring, and other products, and the charts considered therewith, have already made it clear that hand-to-mouth buying in those industries is by no means solely a post-war phenomenon. It is unnecessary, therefore, in this chapter to review for a long period of years the trade comments for these products. A few observations are sufficient to serve as a check on the quantitative data considered earlier.

*Market reports on iron and steel, lumber, and canned foods support the quantitative data already presented.*

A study of the reports on iron and steel through two periods of decline and revival shows clearly that buying practices have shifted significantly from time to time, and that hand-to-mouth buying has been long known and named in the trade.\* In 1912 orders for steel were being placed well in advance. There was no complaint of hand-to-mouth buying, but in 1913 the reports stated that there had been a reversal of buying practices. This continued until 1915, when it was reported: "There is a runaway steel market in every sense of the term." With the exception of a period of strong governmental influence during the war, this vigorous market continued until 1921, when hand-to-mouth buying appeared. In 1923, however, there was again what was reported to be a "buoyant" market. Since the fall of that year, however, very conservative buying practices have prevailed. A survey of the charts on pages 54-61 will show that in the "runaway" and "buoyant" periods the order basis grew rapidly.

In the lumber industry buying practices have also shifted.<sup>†</sup> Even within the past ten years there have been several changes of attitude. While in the first part of 1919 there was complaint of hand-to-mouth buying, the actual term being used, the market was said to be running wild by April. By October of that same year "buying had become cautious." But the following spring it was again very active, continuing with con-

\*The reports on buying practices as they appeared in the *Iron Age* were read from 1912 through 1927.

<sup>†</sup>Market comments on this industry were studied in *Lumber*.



siderable strength until the fall of 1925. Since that period it has been upon a hand-to-mouth basis.

Buying practices in the food trades also show marked changes over a period of years. Not only does the placing of future orders for canned goods wax and wane, but there are times when large orders will be placed for peas, and buying of corn will be extremely conservative.\* Over a period of 20 years the market comment supports the variations in trade practices which have already been disclosed by quantitative data earlier examined.

Certain general conclusions seem justified from this look into the past.

*If the correlation between a declining price and hesitant buying found in the industries studied holds true in general, hand-to-mouth buying must have been the common rather than the uncommon practice in American business for many years following the Civil War. It must have been much less common from 1900 to 1920. Immediately at the close of the Civil War there was, in certain goods, an advance in prices, but this momentary situation was followed by a long price decline for many commodities. The evidence indicates that with the exception of brief intervals buyers practiced hand-to-mouth buying vigorously through that decline. But just before the beginning of this century general prices turned upward, and the rise continued until the close of the World War. There were periods of very restricted buying between 1900 and 1920, but the long steady ad-*

\* Market comment in *The Canner* was examined for a period of 20 years.

vance in prices of many commodities caused buyers considerably to modify the caution of the earlier era. It was far easier to buy freely and buy right after 1900 than it had been in the last third of the preceding century.

Rather than the shock of a new business experience, the hand-to-mouth buying beginning in 1920 was the shock of hand-to-mouth buying (in a rather intensive form) upon a seller's mind which had been softened by two decades of rising prices ending in three or four years of a market orgy. It was indeed a new experience for most of the business men actually concerned, for the turnover of executives since the change at the turn of the century had been extensive. But it was far from a new experience to the institution of business.

*Although hand-to-mouth buying has been greatly influenced by the "general conditions" of business, it is not controlled by that alone.* Buying practices are highly sensitive to the conditions and particularly the prices in the particular trade. In 1897, following a long period of hand-to-mouth buying, there was advance ordering on a good scale in the dry goods market. It was two years later before a similar turn for the better took place, following the long period of hand-to-mouth buying, in the shoe trade. The occurrence of strong forward buying breaking through an era of hand-to-mouth buying in one of these industries while hesitant buying continued in the other has been discussed fully on page 439. In the canning industry there have been periods when there was vigorous forward buying of one vegetable and hand-to-mouth buying of others. The so-called "buyers'

strike of 1920" began in April of that year in the canning industry; it was September before it was clearly defined in the steel trade.

*In its frequent recurrences hand-to-mouth buying has been the same, yet a different thing.* This is because hand-to-mouth buying is compounded of three elements: one is an attitude of conservatism in buying; another is the physical condition and organization of the machinery through which trade operates. The third is a technique of manufacture or of storage which makes production or shipment, or both, possible on short-order. The attitude of conservatism grows from such factors as general business depression; falling prices, or very high prices, in the particular industry concerned; unstable banking or money conditions; unfavorable tariff or other legislation; or fashion factors. As these have varied in seriousness, the attitude of caution has varied in *intensity*. The mechanics of trade involved are such matters as transportation and communication agencies, both as regards their physical development and their organization for making quick deliveries and low rates. Most important in the third factor are those constantly introduced methods which speed up manufacture. When a more rapid manufacturing technique has developed in an industry, when transport is faster, *the same degree of caution means a greater degree of hand-to-mouth buying.* There is, in purchasing practice, a variable attitude operating upon a variable physical basis. The attitude may change from the fear found in a buyers' strike to the recklessness displayed in wild inventory speculation.

But the physical basis of trade has tended constantly to improve, making *possible* smaller orders, orders less far in advance, and a steadier flow of trade. Although continuous, this expansion and improvement has not been altogether steady, so that sellers have at times been able to settle into a condition of comparative permanence in their trade adjustments. From such a condition, however, they have been frequently, and sometimes sharply, aroused by a recognition of the fact that mechanical progress has disturbed the old arrangements. In the more detailed comment the announcements of the effect of railroad expansion, of rate reduction, of the development of express and mail service, and of the telegraph have exemplified the recognition of such disturbing movements.\*

There is ever and again a most significant truth in such comments as: "But things are different now; for example, consider modern transportation." While it is obvious that the commentators of 1850 regard as marvelous transportation facilities which seem ludicrously antiquated to us, consider what the coming of railroads and the railroading advances of those days meant to business men who had regarded canals as a gigantic step forward in rapid transportation and communication. Such improvements must have brought quite as great changes in market relationships as those being made today. Improvements, like most other things, are relative.

*Hand-to-mouth buying in the present era is more severe than in earlier periods.* The desire to be cautious

\* As will be pointed out in the next chapter, rapid changes are at present under way.

is no greater, but mechanical improvements make it possible for the buyer to buy less far ahead, to demand quicker delivery, to require smaller units than was ever the case before. Moreover, the buyer works now with an improved knowledge of his own business affairs. He is a better informed buyer and a better trained manager of his business than was formerly the case. Further, he is more desirous of achieving what he regards as a good management than he has ever been before. There has developed a creed of management the subscribers to which become more numerous daily. The articles of the faith are those of the engineer rather than the enterpriser. They urge toward planning rather than speculation in buying."

Finally, a review of past buying practices brings the conclusion that the state of the mechanical equipment of production and of trade furnishes the minimum beyond which buyers cannot carry their almost always existing proclivities toward conservatism. The degree of hand-to-mouth buying which can exist in this or another era (if this does not continue) depends, finally, more upon advances in production methods and in communication and transportation than upon any other factors. No matter how strong our desire for shortening the period between possessing ourselves of raw material and placing the product in the hands of the consumer, the physical task of production cannot be avoided. The celerity of the production process lies not in wishing but in men and machines.

" See also pp. 449-452.

## CHAPTER XXIII

### CURRENT TRENDS AND THE OUTLOOK \*

The survey of trade practices over a series of years and in a number of industries has made it evident that hand-to-mouth buying may be ascribed to forces some of which are recurrent and affect chiefly the attitudes of buyers, and some of which are technical and which are not only more or less continuous but tend to become continuously more effective.<sup>1</sup> The outlook for hand-to-mouth buying, or the outlook for its severity, depends upon the stress and strain of these forces and upon others which they generate. The forces which other forces generate are an extremely important consideration; for when we begin a discussion of the origin and permanency of economic institutions, we venture into that confusing land of social relationships where causes are also effects, and effects causes, and where either may start as one and presently become the other.

\* In view of the conclusions which have been given in the various chapters or divisions of the book, it appears unnecessary to summarize in this final chapter.

<sup>1</sup> "Hand-to-Mouth Buying," a *Bulletin* issued by The Policyholders Service Bureau of the Metropolitan Life Insurance Company in 1927, consists of a collection of statements on the subject, in many of which so-called "causes" are given.

A good presentation of what have commonly been spoken of since 1921 as the causes of hand-to-mouth buying is that made by Clark, F. F., *American Economic Review Supplement*, March, 1928.

The most fruitful way to consider the outlook for hand-to-mouth buying is, therefore, to examine briefly the more important factors which are operating, giving heed to their current trends and to developments which are, or may be, generated by these trends. While all the forces ultimately center in price movements or costs of operations, those which are suggested both by historical survey and current analysis as demanding attention are:<sup>1</sup>

1. The general business attitude toward buying,
2. The penetration of engineering ideals into trade practice,
3. Price trends,
4. Elements of style,
5. Improved communication,
6. Improvements in transportation.

*So long as business continues there will be a desire to buy at the right place, from the right person, at the right time, and in the right quantity.* No business man, old or new, probably would be willing to admit that he was thoughtless of any of these elements of good buying. In judging them he has had to consider not only the risk of buying too far in advance but of not buying in time; the dangers of too small as well as of too large inventories (there are many stories current of merchants who have suffered serious losses because of a shortage of goods or because of carrying too few varieties in their efforts to keep down stocks); of not having style goods as well as of having on hand those which are out

<sup>1</sup>In addition to those listed, the quickened technique of manufacturing is very important, but this is so definitely a matter of specific industries that there seems little point in discussing it generally.

of style; of prices rising as well as falling. But the effort to buy right in all particulars, as was suggested in the last chapter, may be much stronger at some times than others and all the mechanical factors in the situation change. In so far, however, as the purpose of business men is essentially to take pay for a service rather than to profit from speculation, their attitude is constantly a strong force working towards the characteristics of trade which are called hand-to-mouth buying.

*A variety of agencies have been, and are, combining to put into trade the ideals and methods of engineering.* These forces are various expressions of the steady invasion of exact knowledge into the realm where experience, judgment, and shrewdness were once considered supreme. This movement is by no means a matter of the last few decades. Commercial arithmetic and accounting had gone far in the business of the Italian cities even before the Crusades. In our own country the enormous growth of business colleges, beginning about 1825, and reaching its peak in 1920 with an enrollment of 336,000 students, is an indication of a growing use which business has been making of figures and records. Its growth is shown also by a demand for similar training in public high schools.\* Engineering ideals made a more significant inroad into American business in the latter half of the nineteenth century. The acceptance of a more scientific technology in manufacture, and the expanding scale of operations

\* There are now approximately half a million students in high school commercial courses.



approximated a revolution in American industry comparable to that which had been under way in England for more than 50 years. A formal engineering training became a valuable asset in manufacturing. This fact plus the rapid development of engineering schools brought many trained engineers into the production phases of business.<sup>4</sup> The engineering ideal is one of pre-planning of an operation or of related operations on the basis of accurate calculation, and the execution of the plan by standard procedures. The acceptance of engineering ideals in production has, particularly during the past 15 years, been working its way into buying and selling activities. The more recent literature of marketing is full of such phrases as "market research," "sales budgets," "purchasing schedules," "commercial cost accounting," "standardization and control," "sales engineering." These are the phrases of exact plans and methods, phrases expressing the philosophy of the engineer. The ideals of this movement have indeed become to some degree goals in themselves; research, planning, turnover, and control have become ends as well as means. Merchants not only vie with one another to excel in stock turn but strive to make an "ideal" average or "normal" mark. Keeping sales costs below a "common figure" is an object. Reports of successful "studies"

<sup>4</sup>If we omit the United States Military Academy, the first engineering school in the U. S. was the Rensselaer Polytechnic Institute founded in 1824. The real growth of engineering schools in America however, came after 1862, with the passage of the Morrill Land Grant College Act, providing for the creation of colleges of engineering and agriculture. This Act, supplemented by the so-called Second Morrill Act of 1890, is said to have been responsible for the establishment, by 1915, of 67 institutions.

and "control methods" are made with pride at business meetings.

The expansion of planning in trade has been greatly aided by the growth of collegiate schools of business. Although the Wharton School of Finance and Economy (later called the Wharton School of Finance and Commerce) was founded in 1885, this movement has really been a movement of the twentieth century, as no other similar schools were announced until 1898. It is since 1910 that its growth has been remarkable, 165 schools offering collegiate business education being established in the period 1910-1925.<sup>5</sup> These schools are primarily schools of management, management taught essentially as exact knowledge based on exact records and exact planning applied to business affairs.

Supplementing these formal agencies there has developed a trade and commercial press which has made the business man conscious of his problems as he has never been conscious before. In addition to private efforts, the work of government agencies has been important in creating and in raising business standards. Particularly important have been the Department of Agriculture and the Department of Commerce. Both of these are enormous agencies of business research and education, the latter expanding under the energetic direction of Mr. Hoover from a staff of 11,294 and a budget of \$22,000,000 in 1920 to a staff of 15,858 and a budget of \$37,500,000 in 1928. For approximately a decade it has been bringing together an array of figures

<sup>5</sup> Ruml, Frances, in *The Collegiate School of Business*, edited by L. C. Marshall, p. 62.

and making studies in a variety of specific business problems which have not only greatly stimulated the thought of business men but have given methods and materials with which they could work.

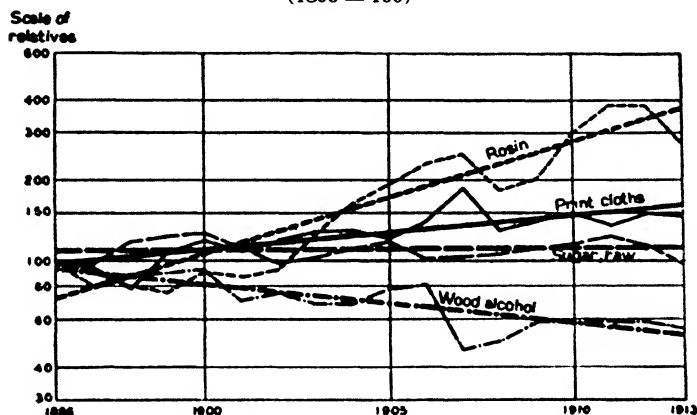
Will these forces continue to make buying more planned, more conservative, more knowledgeable and less speculative? There seems every reason to believe that they will. Businesses are utilizing trained men; they are paying generously for the information furnished by private research agencies; and they are supporting vigorously the research of government agencies.

*Both general and particular price movements will have important effects on hand-to-mouth buying.* It is unnecessary to repeat the common sense fact so frequently supported in Chapter XXII that declines in price lead to an added conservatism in buying. It would be out of place also to attempt here an exhaustive analysis of the possibilities of price changes in the future. It is worth while, however, to be reminded that the evidence has shown that buying practices in a particular industry appear to be quite as much, or more, influenced by price movements in that industry as they do by the general price level, and to realize that the so-called price level is a composite of many prices which may have acted very differently individually. The chart on page 453 illustrates the divergent movements of the prices for several commodities over a series of years. One would hardly expect the same buying attitudes to have prevailed at every period in each of these industries as in every other one. Prices, it should also be remembered,

may work in devious ways. A price rise may stimulate forward buying, but cases have been given where an extreme price advance caused a complete stoppage of purchases.

*Fashion and style have mixed influences upon hand-to-mouth buying.* It is commonly said—and no doubt

RELATIVE PRICES OF FOUR COMMODITIES, AT WHOLESALE, 1896-1913.  
WITH LINES OF TREND <sup>a</sup>  
(1896 = 100)



<sup>a</sup> Reproduced from Mills, Frederick C., *The Behavior of Prices*, National Bureau of Economic Research, Inc., 1927, p. 65.

with truth—that style influences have played an important part in buying practices since 1920. In certain lines of goods, of which shoes are an example, style elements have been very marked. A leading Chicago retailer of shoes has made the following change in the number of styles carried:

Year	Men's Styles	Women's Styles
1920.....	175	500
1928.....	375	1,000

Another important retailer carried 307 lines in 1920 equally divided between high and low shoes. In 1928 he carried 306 lines of low shoes. Style trend has caused him to discard high shoes and double his variety of low shoes during the period. But this increase in variety is not all. It represents the situation only at a given time. Where formerly the same styles lasted typically for a season, he reports that he now constantly replaces styles as they become sold out, thus selling between 600 and 650 lines of low shoes in a year. A large but somewhat conservative middle Western manufacturer has increased his numbers from 450 in 1920 to approximately 800 in 1928. A large Eastern manufacturer who puts emphasis upon fashion lines was producing double the number of styles in 1927 that he was in 1921.\*

The violent changes in hosiery styles, of which every one has been aware, are thus described by the president of the Holeproof Hosiery Company.†

It was as fundamental as the laws of the Medes and the Persians that black stockings should accompany black shoes; brown stockings should be worn with brown shoes; and white stockings with white shoes. . . .

A change took place; skirts were shortened and women became educated to the wearing of silk stockings as a matter of daily occurrence. However, the color combinations I have

\*There is a difference between varieties and styles. The former term applies to types or lasts. There may be many styles or patterns of one variety produced. The same variety may appear in calf, snake, or cloth, etc. A "number" is one of these styles rather than a variety. A company may increase its numbers or styles and nevertheless reduce its varieties.

†A statement in "Hand-to-Mouth Buying," a *Bulletin* issued by the Metropolitan Life Insurance Company, Policyholders Service Bureau, 1927, pp. 155-157.

described remained in effect. Suddenly, however, some woman conceived a new idea. Somewhere or other (I have never ascertained just where this took place), a leader in the world of fashion appeared wearing black shoes and champagne colored stockings. The thing spread over the world like wildfire; and it was impossible for the manufacturer to meet the demand for champagne colored stockings. This style or color combination continued for a few months when some other lady conceived the idea of wearing gray shoes and gray stockings. As is usual in these things, the multitudes followed suit and women began besieging the stores in an attempt to match gray stockings and gray shoes. This was only the beginning of a color craze in hosiery. . . .

Suddenly from gray stockings, the ladies the world over changed to flesh-colored, or what is known as nude shades of hosiery. This was the beginning of a chaos. It was discovered by fashion designers and manufacturers of dye-stuffs that they could designate as many different shades in flesh colors as there are colors in the rainbow. This, of course, brought about a situation which made it almost impossible for a merchant to place orders for any appreciable period in advance of his actual needs. . . .

In addition we had to meet a similar situation in connection with the manufacture of men's hosiery and children's hosiery. For many years the style in men's hosiery called for what we call plain colors. This entailed the manufacture of only some eight or ten colors. In the last few years, however, the style in men's hosiery changed to the use of what we call fancy designs or novelties, which, of course, involved the production of a great many more numbers in order to meet the popular demand. The same thing is true with regard to children's stockings.

The stock carried by this company in the three types mentioned, in 1920 and in 1927, was as follows:

1920.....	480 items
1927.....	6,006 items

Nor are style changes limited to wearing apparel. Plumbing manufacturers are urging design and color combinations formerly unthought of in kitchen and bathroom fixtures. Kitchens and bathrooms are to be costumed as well as equipped.\* Automobile manufacturers are advertising hundreds of color combinations.

It is indeed difficult to determine the extent to which there is a general increase in number of styles, as no careful effort to measure the change has been made. Striking illustrations are not difficult to give, but it is even easier to offer striking illustrations of simplification which has greatly reduced the number of patterns and types of certain commodities passing through trade. The two are opposing trends. At the moment it seems probable that the style influence is leading in consumers' goods (although certain consumers' goods are tending toward simplification), while the simplification trend has a strong lead in other fields. Style, and rapid style change, however, is not novel in human experience.\* The study of trade comment in the preceding chapter showed that styles were more than once given in the nineteenth

\*The reader who still thinks in terms of the bathtubs and sinks of a decade ago may find verification for this statement in the following quotation from an advertisement which enjoyed a full page in the May 4, 1929, number of America's most widely read weekly under the title "What Well Dressed Kitchens Are Wearing." "Exquisitely styled, smart as a Paris frock, gleaming like a jewel in its sparkling chromium cloak. . . . Never-tarnishing . . . never wearing . . . kept dazzling by simply wiping with a damp cloth . . . this is the brilliant new Diamond sink fixture by Speakman. Sheer beauty imprisoned in sparkling metal."

\*In this connection the reader will enjoy Nystrom, Paul, *Economics of Fashion*, 1928.

century as a cause of hand-to-mouth buying. But it is important to realize that there has never been a time when producers were so well organized to push for style acceptance, when there was such a potent tool as present-day national advertising to aid them,<sup>10</sup> or when general prosperity made it so often possible for the consumer to gratify style wishes."

Rapid style change in consumption has, and will continue to have, curiously enough, some of the same effects on buying practices as improvements in manufacturing technique. The former brings obsolescence in terms of appearance or design; the latter in terms of cost. Both factors will need to be watched closely as they affect individual industries, rather than in any general way. Careful as the buyer may be, style goods are risky goods.

Finally, it must be remembered that the "style element" in goods is not merely the vogue. It is not merely the color, design, or what not that is "in" at the moment. "Style element" includes also a variety of choice at a given time. While the merchant may buy sparingly of each style of style goods, the variety of styles necessary may require more dollars' worth of inventory than would otherwise be the case. While he

<sup>10</sup> The current campaign of The National Shoe Retailers' Association with its purpose of emphasizing style in men's shoes illustrates both points.

<sup>11</sup> While it is arguable that a rapid change of the consumer's interest from one style to another results in waste, it is also arguable that if the consumer believes he can afford such change, the opportunity of gratification through following style should not be denied him.



will have fewer goods of any style to get out of date, he may have many more styles threatened with that condition. It may well be that the "style element," if a growing one, may make it unprofitable for a merchant to reduce the inventory or increase stock turnover by any degree of conservative buying.

*Communication devices used as a remedy for hand-to-mouth buying have become a potent cause of the practice.* When business men, six or seven years ago, began to be conscious of an increasing number of small orders and to suspect the undue costs of such orders, many of them instructed their salesmen to omit small customers from their routes and to substitute a telephone conversation for at least every other one of their regular calls. This plan became common for taking "fill-in" orders between regular seasons, and in lines where small continuous ordering had greatly reduced seasonal ordering (as in shoes; see Chapter IV) the telephone call came, often, to replace a "regular" call. As sometimes organized the method of combining telephone calls with personal calls was popularly named the "stop and skip system." The economies of telephone selling have caused manufacturers and merchants to use it widely."

The telephone companies, however, have seen in this emergency use of the telephone a great opportunity to establish telephone selling as a permanent method. They

"A volume by J. George Frederick, *Selling by Telephone*, appeared in 1928. Many of the advantages of "selling by wire" had been first presented by the telegraph companies.

have, accordingly, organized their facilities for sales use and are selling their idea of utilization very energetically. The change has been in the use of the telephone in long distance calls for trade selling.<sup>11</sup> Telephone officials attribute to the growing use of the telephone in such work most of the following increase in the daily average number of long distance telephone calls:

	Daily Average
1923.....	2,000,000
1928.....	3,000,000

The use of the telephone in selling fits admirably into many other trends of modern trade, particularly the declining belief in high pressure selling and the growing interest in service. Its extensive use was stimulated by small order buying, but the discovery of its effectiveness and its organized development have converted it into a cause of such buying. Among current forces it must be counted as one making for the continuance and, to some extent, the increase of hand-to-mouth buying.

*Nothing is more important for the permanency of hand-to-mouth buying than transportation improvements.* It has been earlier suggested in these pages

<sup>11</sup> Among the sales efforts of the telephone companies none probably is more effective or conducive to convenience and economy than the "Keytown plan," which enables travelling representatives to cover their trade from a comparatively small number of selected so-called Keytowns, chosen by the telephone company as those offering the greatest advantage of equipment, toll connections, and probable relationship to sales organization already developed. The Keytown telephone offices are provided with special facilities for salesmen. A credit system makes it possible for toll bills to be rendered to the home office.

that transportation is a fundamental technical device of trade and that its improvement has repeatedly, through the history of American commerce, been responsible for lessening the period of ordering ahead and for making it practicable to order in small units. Roads, canals, the river steamboat, the steam railroad, the inter-urban electric, the motor truck, and the airplane have each marked an advance in the mechanics of transportation. The creation of express services, the correlation of railways with delivery concerns, and the inauguration of the parcel post system have all been steps ahead in the organization of equipment. The history of each of these mechanical and organization changes would contribute something to a view of current trends in transportation and the probability of the permanency of present trade practices. Such a review, however, is beyond the reasonable scope of this chapter. Since the middle of the last century the fundamental means of trade transportation has been the steam railway. The increase in railroad efficiency during the past eight or nine years may therefore be discussed as illustrative of the part which improvements in transportation play in developing hand-to-mouth buying."

"While the development of the motor vehicle in transportation has been obvious, its real competition with the railroads has been in carrying passengers rather than freight. It seems probable, however, that motor truck transport has replaced the short freight shipments of some manufacturers, particularly those who have a considerable proportion of their customers within a limited area. According to Professor Henry R. Trumbower (*Journal of the Western Society of Engineers*, April, 1926), the truck ton-miles on our public roads which might be regarded as competitive with the railways was, in 1926, less than 2 per cent of railway freight ton-miles.

Prior to the World War there was a ten-year period when the program of railroad extensions and improvements was far below the normal rate of earlier years." Upon January 1, 1918, the railroads were taken over by the national government for purposes of war time operation and were not released until February 29, 1920. The exigencies of war use made the customary rehabilitations impossible, and they were returned in an admittedly run-down condition." The depression of 1921 and the first part of 1922, supplemented by the coal strikes and the shopmen's strikes of the latter year, retarded advance. It was not until 1923 that the beginning of a new growth of improvement and efficiency became manifest among the roads.

*Since 1923 the railroads have been steadily increasing the speed and dependability of freight movement.* So long as this improvement continues there will be a strong force working against advance ordering and large shipments of merchandise. A judgment on its continuation requires a brief consideration of the factors giving rise to the advances made. First, it appears that railroad construction since 1920 has been chiefly of a sort contributing to increased efficiency. During the eight years 1920-1927 the following increases were made in the various types of railway track: "

"Cunningham, W. J., *American Railroads*, 1922, p. 19.

"A story popular in railroad circles at the time was to the effect that someone remarked to a railroad man, "The government has turned back certain numbers of cars to the railroads," to which the railroad man replied, "Not numbers of cars, car numbers."

"Computed by the Bureau of Railway Economics from Statement No. 3, Interstate Commerce Commission, *Statistics of Railways in the U. S.*

	Increase in Miles	Percentage Increase
Miles of road .....	4,270.26	1.8
Second main track .....	4,849.61	15.5
Third main track .....	208.58	7.1
Fourth main track, etc.....	300.03	13.2
Yard track and sidings ....	14,161.00	13.6
All track .....	23,789.48	6.3

It is clear from a consideration of these figures that while there has been a slight increase in miles of line, the significant additions have been in those types of tracks which most fully contribute to an intensive use of railway facilities. This is not only true of second and other main tracks but of yard tracks, which accelerate the formation and break-down of freight trains, and of sidings, which permit more rapid operation on single track lines.

The operating equipment of the railroads has also been expanding toward greater efficiency rather than toward mere magnitude." While locomotives have been declining in number, the aggregate tractive power increased from 2,341 million pounds in 1920 to 2,606 million pounds in 1927, an advance in tractive power per locomotive from 36,365 pounds to 42,798 pounds. Similarly the freight carrying capacity has increased. Although the actual number of freight cars barely held its own in the period 1920-1927, the average carrying capacity per car increased from 42.4 to 45.5 tons, and the total carrying capacity from 98 million tons to 106 million tons. These physical advances have been supplemented by many technical improvements: new

<sup>10</sup> Data from Interstate Commerce Commission, *Statistics of Railways in the United States*, Statements 8 and 9.

types of linings for boilers, new methods of firing and fuel control," and improvements in construction and repair methods" which have increased the operating distance of locomotives and the average speed attained.

The physical changes described are reflected in an improved operating efficiency. There are three aspects of this improved efficiency which are of the greatest importance to hand-to-mouth buying: the increased speed of freight service, the "on-time" schedules for freight, and the decline in car shortage." The increased speed which is being achieved is evidenced, among other ways, by the following record of freight train speed (miles per hour between terminals) over a period of nine years:

1920.....	10.3
1921.....	11.5
1922.....	11.1
1923.....	10.9
1924.....	11.5
1925.....	11.8
1926.....	11.9
1927.....	12.3
1928.....	12.9

"The fuel consumed (pounds) per thousand G. T. M. (gross ton-miles) dropped from 173 in 1920 to 127 in 1928, an improvement of 26.6 per cent. From Interstate Commerce Commission, *Monthly Reports* of "Freight and Passenger Service Operating Statistics of Class I Steam Railways in the U. S.," partly estimated for 1920 by the Bureau of Railway Economics.

"The percentage of freight locomotives unserviceable was 24.5 in 1920 and 16.3 in 1928, an improvement of 33.5 per cent. *ibid.*

"The so-called index of railway efficiency made up of a large number of factors, not all of which are significant for the purpose in hand, has shown a steady and rapid improvement since 1923. The yearly average for the five years 1924-1928 (1920-1924 = 100) are as follows:

1924.....	104.8	1927.....	115.2
1925.....	109.4	1928.....	118.1
1926.....	113.5		

This is a Bureau of Railway Economics index published in their *Bulletin* 47, "A Review of Railway Operations in 1928," pp. 34-35.

The percentage improvement for the period is 25.2. The freight car-miles per car-day show a similar trend and an improvement of 24.7 per cent during the same nine-year period."

The significance for hand-to-mouth buying in the increased speed of freight trains is emphasized when one sees the reduction of time being attained between important shipping points. The most marked changes in these schedules have come recently. The table on page 465, showing some of the more important changes made by the Santa Fe Railroad and which are reported as typical, thoroughly illustrate the point."

The tendency toward faster freight service has been made doubly effective by the "on-time" movement for freight trains. The "on-time" movement is the outgrowth of a determination on the part of railroad officials to give freight trains a new degree of regularity and dependability. While there are available no figures covering the United States as a whole, the movement is well evidenced. Of the Pennsylvania Railroad it is reported for example:\*

A few years ago only 10% of Pennsylvania Railroad freight trains, usually those carrying livestock and perishables, moved on regular schedule. Trains carrying all other lading were moved as the freight accumulated, and consequently the time of arrival was extremely uncertain. At that time, this was the general practice on American railroads. Now 90% of all Pennsylvania freight trains are operated on regular schedules,

\* Data from Interstate Commerce Commission *Monthly Reports* of "Freight and Passenger Service Operating Statistics of Class I Steam Railways in the U. S."

\* These data were furnished the writer by the President of the Atchison, Topeka and Santa Fe Railway System.

\* In a letter to the author. There are numerous examples of similar attainments by other roads.

just like passenger trains. This system has revolutionized the prior situation which existed as late as 1920, when freight

# INCREASE IN FREIGHT TRAIN SPEED, SANTA FE RAILROAD

Terminals	Old Schedule		Present Schedule		Percentage Reduction
	Hours	Minutes	Hours	Minutes	
Chicago to:					
Kansas City....	29	30	23	—	22.0
Tulsa.....	71	30	41	—	42.7
Wichita.....	72	40	42	30	42.7
Hutchinson....	46	10	42	30	7.9
Denver.....	82	30	82	30	—
Albuquerque....	101	35	92	—	9.4
Amarillo.....	85	40	60	15	29.7
El Paso.....	156	—	108	—	30.8
Phoenix.....	169	—	152	30	9.8
Los Angeles....	204	15	141	30	30.7
San Francisco...	219	40	154	30	29.7
Oklahoma City..	58	—	57	40	.6
Fort Worth.....	75	25	74	30	1.2
Kansas City to:					
Tulsa.....	22	30	16	30	26.6
Wichita.....	23	40	17	30	26.0
Albuquerque....	70	50	65	—	8.2
Amarillo.....	46	10	34	15	25.8
El Paso.....	116	30	81	—	31.3
Phoenix.....	129	30	125	30	3.1
Los Angeles....	164	45	115	30	29.9
San Francisco...	180	10	128	30	28.7
Oklahoma City..	27	30	27	10	1.2
Fort Worth.....	44	55	44	30	.9
Denver to:					
Wichita.....	46	40	33	55	27.0
Oklahoma City..	70	—	46	10	34.0
Fort Worth.....	86	—	62	10	27.7
Dallas.....	104	—	81	10	22.0
Houston.....	116	30	92	40	20.5
Kansas City....	62	30	35	40	42.9
Chicago.....	104	—	69	10	33.5
Albuquerque....	57	—	54	10	5.0
El Paso.....	80	—	70	10	12.3
Phoenix.....	117	—	114	40	2.0
Los Angeles....	154	15	115	10	25.3
San Francisco...	169	40	128	10	24.5

shipped from the Middle West to the Eastern seaboard might be on the road one week or two weeks.



The Santa Fe has a freight schedule between Chicago and San Francisco, 2,533 miles, which contemplates an eighth morning delivery. This road reports for a recent month that 97 per cent of its deliveries were in the terminal on time or ahead of time and that such a record is typical rather than exceptional.<sup>23</sup> The effort of the roads to achieve dependability is being stimulated by the work of Chambers of Commerce, traffic clubs, and other organizations which have at heart the interests of buyers in their respective cities.<sup>24</sup> The new certainty of freight movement has also made it possible to link schedules at terminals with a minimum of delay. Such a linking has resulted in a freight speed between such points as New York and Topeka or Tulsa, via Chicago, which is not greatly inferior to express service.

Probably no single factor in railway operation has been so significant for the buyer who does not wish to order ahead and who buys for immediate needs as the

<sup>23</sup> Certain of the railroads have, as a means of stimulating the public's interest in freight transportation, adopted a policy of naming their scheduled freight trains. The Pennsylvania System, for example, has among its so-called "Limiteds Of The Freight Train Service" The Purple Emperor, between Baltimore and Norfolk; The Challenger, between Chicago and Cincinnati; The Big Smoke, between Chicago and Columbus; The Ace, between Pittsburgh and Eastern points.

<sup>24</sup> The Chicago Association of Commerce is only one example of such an organization giving publicity each month to the records of the railroads operating in their territory. Such a report for a recent month takes the following form:

Total cars merchandise shipped . . . .	46,991
On-time arrivals at destination . . . . .	42,773—91.02%
One-day-late arrivals at destination . .	3,214— 6.84%
Two-day-late arrivals at destination . .	709— 1.48%
Three-day-late arrivals at destination .	1— .04%

Such publications for each railroad act as a constant spur upon punctuality.

improvement in the car shortage situation." The inability to get freight cars promptly has, throughout railroad history, been a cause necessitating advance ordering and delays in shipment. A remarkable improvement has been brought about through the effective work of the Car Service Division of the American Railway Association. The activities of this agency are a striking example of the possible effects of group organization in applying high standards to individual action. The average daily freight car shortage for the period 1920-1928 was as follows: "

1920.....	81,592
1921.....	1,454
1922.....	47,882
1923.....	29,216
1924.....	1,047
1925.....	443
1926.....	286
1927.....	170
1928.....	42

A consideration of this table in the light of the fact that there are some 2,300,000 freight cars in service indicates that car shortage has practically disappeared from American railways.

Other developing transportation agencies are being correlated with railroad freight service for further convenience and expedition and for economy as well. This may be illustrated by the alignment with motor truck transportation, the rapid increase in which is suggested

" A car shortage consists of the unavailability of a car for loading within 24 hours of the time for which it is requisitioned by a shipper.

" Data furnished by the Bureau of Railway Economics.

by the following tabulation of the number of motor trucks and road tractors operating: "

1925.....	2,442,000
1926.....	2,764,000
1927.....	2,914,000
1928.....	3,114,000

While motor truck companies continue as competitive agencies, the railroads, either through ownership of equipment or through contractual arrangements with trucking or "carloading and distributing" companies, are using motor vehicles to supplement their steam carrier service. Motor trucks are employed by the railroads to transfer freight from road to road at terminals; to concentrate less than carload freight for car shipment; to provide pick-up and store-door delivery service; "to replace local freight trains." The railroads report added economy as well as improved service in these uses." There is no doubt that the integration of transport ser-

" As obtained from the U. S. Bureau of Public Roads.

" In one particular form utilized by the Pennsylvania Railroad, this pick-up and delivery service is based upon the use of portable steel containers which, carried upon motor trucks, are filled at the shipper's plant. They are then placed upon specially constructed freight cars; and, if the shipper wishes, delivered to the consignee's door. The Pennsylvania Railroad experimented to some extent with portable containers as long ago as 1869. See "The Limiteds of the Freight Train Service," a *Bulletin* published by the Pennsylvania Railroad, January, 1929.

" For general discussion of these uses see *Railway Age*, Vol. 79, No. 24, p. 1,077; and Vol. 84, No. 25, p. 1,476. The U. S. Bureau of Public Roads reports, on the basis of studies in several states, that the principal truck activity is limited to a zone of 29 miles or less (*ibid.*, Vol. 79, No. 23, p. 1,023). Presidents of railroads operating in various territories report comparable distances. *ibid.*

" See reference to Long Island Railway, *Railway Age*, Vol. 81, No. 4; Duncan, C. S., "What the Motor Transport Investigation Has Shown," Vol. 81, No. 17, p. 811; "Motor Transportation and the Railways," Vol. 84, No. 25.

vice involved in some of these practices goes far toward controlling the flow of goods through trade as it is controlled in the production process of a modern factory.

The extent to which railroads are developing truck service is suggested in the following data: "

	1927	1928
Number of roads operating trucks, tractors, and trailers .....	31	45
Number of trucks, tractors, and trailers operated ..	3,300	4,902
Number of routes and terminals served .....	259	298
Aggregate motor truck route mileage .....	...	3,521

The significance of railway efficiency in hand-to-mouth buying makes it particularly important to consider the probable future of the trends that have been discussed. Will these current tendencies be continued into future years? Have the railways already reached the peak of efficiency? While such questions defy absolute answers, certain observations may be made with some certainty.

Considering first so important a matter as car shortage, it is evident that there is little, if anything, left to be done. A practical maximum of efficiency has been attained. The energies of the Car Service Division are already being turned to heavier loading campaigns and other activities calculated to aid in effective transportation. Moreover the dependability of the freight schedules of the better roads, at least for certain trains, is at

" "Motor Transportation and the Railways," *Railway Age*, Vol. 84, No. 25. The New York Central leads (in 1928) in use of motor trucks, about 1,500 operating in its service. The Pennsylvania operates 57 motor trucks over 39 routes, aggregating 1,489 miles and serving 588 stations. At terminals it operates 485 trucks besides 115 tractors and 688 trailers.

a point which leaves little to be accomplished. On the other hand, the end is certainly not yet in many aspects of railroad operation. Mechanical improvements of many sorts are going forward which will improve still further both the speed and certainty of freight movement. The time taken for switching and terminal operations is still being reduced by better mechanical facilities and better organization. Finally there are the improvements which may be expected by extending to the roads which have been lagging behind, the standards attained by the leading carriers. In this area there are still, in the opinion of informed railroad men, important advances to be made.

The gains in transportation efficiency achieved during the past six or seven years, and those still anticipated, will be of the greatest significance in continuing and extending the closer correlation between buyer and seller—the closer integration of our specialized productive units—which is of the essence of hand-to-mouth buying. If such improvements can keep in advance of the growth of production and be maintained through periods of exceptional business expansion and decline, it should, more than any other single factor, tend to bring a smoother flow to the movement of goods; to reduce the stocks requirements of merchants and manufacturers; to release for other purposes capital invested in supplies and inventories; to make American industry less speculative and more nearly a matter of planning and control.

Leaving to one side the changes in attitude which

accompany changes in price or style trends, the tendencies toward hand-to-mouth buying which are based on improvements in the mechanics of trade indicate an extension of the principle of the moving platform from individual plants to the vast workshop which we call industry as a whole.

### **BIBLIOGRAPHICAL NOTE**

In cases where charts are shown without supporting tables, the results of the compilations or computations made, whether from original data or from published statistics, are available at the Library of the Institute of Economics. In those instances where basic data were obtained especially for this study they also are available, excepting when their strictly confidential nature makes this impossible.

## **CLASSIFIED LIST OF CHARTS**

### **COSTS**

- Costs of Marketing an Average Year's Pack of Canned Foods in Sizes of Orders Prevailing in 1919 and in 1927, 390**  
**Increasing Costs of Small Deliveries Out of Massachusetts Warehouses, 1924, 392**

### **ORDER BASIS**

- Varying Order Basis For a Large Shoe Company, 40**  
**Disappearance of Seasonal Peaks in Advance Orders of a Large Shoe Company, 42**  
**Paucity of Orders More Than One Month in Advance of Shipment, 1927 and 1928, 44**  
**Decline in Order Basis for a Manufacturer of Women's Hosiery, 1922-1927, 46**  
**Varying Order Basis for a Men's Clothing Manufacturer, 1912-1927, 49**  
**Variations in the Order Basis Among Food Canning Companies, 51**  
**Order Basis for a Leading Steel Manufacturing Company, December 1909-October 1927, 54-55**  
**Order Basis for Merchant Pig Iron, 1919-1925, 59**  
**Order Basis for Steel Sheets, 1919-1927, 60**  
**Order Basis for Steel Barrels, 1921-1927, 61**  
**Order Basis for Face Brick, 1922-1927, 63**  
**Order Basis for Common Brick, 1923-1927, 64**  
**Order Basis for Enameled Ware Baths, 1919-1927, 65**  
**Order Basis for Oak Flooring, 1912-1927, 66-67**  
**Order Basis for Hosiery, 1924-1927, 70**  
**Order Basis for Knit Underwear, 1920-1927, 71**  
**Order Basis for Canned Corn, 73**  
**Order Basis for Canned Peas, 74**  
**Order Basis for Canned Tomatoes, 75**  
**Order Basis for Canned Fruit, All Reporting Companies, 77**  
**Order Basis for Household Furniture, 79**  
**Order Basis for Industrial Pumps, 80**  
**Order Basis Furnished by Department Store Purchases in Designated Federal Reserve Districts, 1920-1927, 84**  
**Seasonality of Order Basis in Boston and "Outside," 1920-1927, 87**



## ORDERS, FLOW OF

- The Flow of Orders in Specified Industries, 284
- The Flow of Orders in Pre-War and Post-War Years, 288
- Orders Received by a Blanket Manufacturer, 1923-1927, 291
- Orders Received by a Food Manufacturing Company, 291
- Orders Received by a Steel Manufacturing Company, 1913-1928, 291

## ORDERS, SIZE OF

- Proportion of Corn Cannery Orders in Indicated Size-of-Order Groups, 1910-1927, 114-115
- Proportion of Corn Cannery Business Done in Orders of Indicated Sizes, 1910-1927, 126-127
- Growth in Large Orders for Canned Corn, 1910-1927, 130
- Growing Importance of Very Large Orders for Canned Corn, 1910-1927, 131
- Sizes of Orders of All Reporting Pea Cannery, 1911-1927, 132-133
- Decline in Large Orders for Canned Peas, 1911-1927, 136
- Varying Importance of Very Large Orders for Canned Peas, 1911-1927, 137
- Sizes of Orders for Canned Tomatoes, Company 35, 1907-1927, 140-141
- Sizes of Orders for Canned Tomatoes, Company 42, 1911-1918 and 1922-1927, 143
- Sizes of Orders of Four Tomato Cannery, 1923-1927, 145
- Sizes of Orders of All Reporting Peach Cannery, 1924-1927, 147
- Sizes of Orders of All Reporting Pear Cannery, 1919-1927, 149
- Sizes of Orders for Canned Berries, Company 42, 1911-1927, 153
- Sizes of Orders for Canned Cherries, Company 42, 1911-1927, 155
- Sizes of Orders for Canned Salmon, Company 43, 1919-1927, 157
- Sizes of Orders for Canned Salmon, Company 44, 1924-1927, 157
- Sizes of Orders Out of Merchandise Warehouses, 1919-1927, 162-163
- Sizes of Orders Received by Six Wholesale Grocers, 171
- Sizes of Orders for Drug Proprietaries Received by a Large Drug Wholesaler, 1920 and 1925, 179
- Proportion of a Large Wholesale Druggist's Business Done in Orders of Indicated Sizes, 182
- Increasing Proportion of Small Orders for Cotton Piece Goods Received by Textile Mills, 1921-1925, 185

## PRODUCTION, STABILITY OF

- Stability of Production as Related to Variations in Unfilled Orders (Enamelled Ware Baths), 1919-1928, 363
- Stability of Production of Oak Flooring, 1912-1928, 366
- Stability of Production of Knit Underwear, 1920-1928, 368
- Stability of Production of Steel Ingots, 1918-1928, 369

## SHIPMENTS (OR SALES OR SERVICES), FLOW OF

- The Flow of Goods Throughout the United States, 1920-1927, 295
- The Flow of Iron and Steel Shipments, 297
- The Flow of Shipments of Non-Ferrous Metals, 299
- The Flow of Shipments of Raw Wool, Raw Cotton, and Raw Silk, 301
- The Flow of Shipments of Textile Manufactures, 303
- The Flow of Shipments of Cattle and Calves, 1900-1928, 304
- The Flow of Shipments of Meat and Other Packing House Products, 306
- Shipments of Wheat from Primary Markets, 307
- The Flow of Cereals Shipments, 308
- The Flow of Fluid Milk Shipments to New York, 1920-1928, 309
- The Flow of Shipments of Poultry, Eggs, Butter, Cheese Out of Cold Storage, 310
- The Flow of Shipments of Sugar and Salt, 312
- The Flow of Carload Shipments of All Kinds of Canned Goods, 1920-1927, 313
- The Flow of Shipments of Canned Vegetables, 315
- The Flow of Shipments of Canned Fruit, 318
- The Flow of Shipments of Canned Salmon, 318
- Shipments from One Canned-Food Manufacturer, 320
- The Flow of Shipments of Building Materials, 321
- The Flow of Shipments of Bituminous Coal, 1905-1928, 324
- The Flow of Shipments of Unclassified Manufactures, 325
- The Flow of Advertising and Railway Transportation Services, 330
- The Flow of Wholesalers' Shipments, 333
- Shipments of Individual Wholesale Grocers, 334
- Shipments to Two Department Stores, 334
- Chain Store Sales to Consumers, 1919-1928, 337
- Department Store and Mail Order Sales to Consumers, 340

## SHIPMENTS, SIZE OF

- Average Size of Shipments of Canned Corn, 1924-1927 (Six companies combined), 202
- Average Size of Shipments of Canned Corn (Three individual companies), 203
- Average Size of Shipments of Canned Peas, 204
- Average Size of Shipments of Canned Peas, Company 27, 205
- Average Size of Shipments of Canned Tomatoes, 206
- Sizes of Tomato Shipments, Company 35, 1907-1927, 209
- Average Size of Shipments of Canned Fruit and Salmon, 213
- Size of Shipments Compared with Size of Orders, Canned Tomatoes, Company 35, 1907-1927, 215

## STOCK BURDEN

- Stock Burden for Non-Ferrous Metals, 230
- Stock Burden in the Iron and Steel Industry, 233
- Stock Burden Index for a Large Steel Manufacturing Company, 1909-1926, 234
- Stock Burden in the Textile Industry, 235
- Stock Burden for Canned Foods, 240
- Stock Burden for Meat Products, 1916-1928, 243
- Stock Burden for Butter and Cheese, 245
- Stock Burden for Refined Sugar, 1921-1927, 246
- Stock Burden in the Building Industry, 248
- Stock Burden of the Wheat Grower, 1908-1928, 252
- Stock Burden of the Cotton Grower, 1916-1927, 254
- Stock Burden of Shoe Manufacturers, 256
- Stock Burden for Gasoline and for Pneumatic Tires, 259

## STOCK TURNOVER

- Stock Turnover of Wholesalers, 1923-1927, 267
- Stock Turnover in Various Retail Lines, 271
- Stock Turnover of Grocery Retailers in Colorado and Nebraska, 271
- Stock Turnover of Department Stores in Specified Federal Reserve Districts, 273

## STOCKS, STABILITY OF

- Stability of Stocks in the Iron and Steel Industry, 345
- Stability of Stocks of Non-Ferrous Metals, 347
- Stability of Stocks in the Textile Industry, 351
- Stability of Stocks of Building Materials, 354
- Stability of Stocks of Food Products, 356
- Stability of Stocks in a Miscellaneous Group of Industries, 359

## CHARTS NOT OTHERWISE CLASSIFIED

- Comparison of Unfilled Orders with Shipments (Enameled Ware Baths), 1922-1928, 33
- Outstanding Orders and Sales of Department Stores in the United States, 1921-1927, 88
- Orders Received by Months, Southern Pine, 1919-1928, 286
- Stocks of Rayon in Bonded Warehouses, January, 1912-December, 1928, by Months, 349
- Relative Prices of Four Commodities, at Wholesale, 1896-1913, with Lines of Trend, 453

## LIST OF TABLES

- Advance Bookings [of a large Shoe Company], 1916-1919, and 1927-1928, 39
- Advance Orders, by Months [of a Large Shoe Company], 43
- Advance Orders [of a Large Shoe Company], 1927 and 1928, with Designated Month of Shipment, 45
- Number of Hose on Order June 1, to be Shipped in Indicated Months [by a Manufacturer of Women's Hosiery], 47
- Number of Reports [Received from Purchasing Agents] Showing Ordering in Advance, for Period Indicated, 91
- Changes in the Average Size of Order of Twelve Manufacturing Companies of Various Types, 107
- Changes in Average Size of Wholesale Grocery Orders, 1921-1927, 174
- Average Size of Orders Received by 25 Wholesale Grocers, 176
- Number of Orders for Drug Proprietaries at Wholesale, by Size and Price Units, 1920 and 1925, 181
- Proportion of a Large Wholesale Druggist's Business Done in Orders of Indicated Sizes, 1920 and 1925, 182
- Comparative Size of Orders Received by a Large Wholesale Druggist from City and Country, 1925, 183
- Orders Received by [Textile] Mills—By Years, 184
- Size of Orders for Shoes, Company B, 188
- Average Size of Order Received by a National Meat Packer, 193
- Sizes of Shipments of Canned Tomatoes, Company 35, 210-211
- Stock Burden for Shoe Manufacturers, 257
- Number of Reports [Received from Purchasing Agents] Showing Indicated Stock Burden, 263
- Comparative Marketing Costs of Various Sizes of Orders for Canned Foods as Reported by Eight Companies, 1928, 386-387
- Comparative Freight Costs of Various Sizes of Orders for Canned Foods as Reported by Seventeen Companies, 388
- Cost of Handling Wholesale Grocery Orders of Various Sizes, 394
- Shift Toward Larger Accounts Achieved by an Electrical Manufacturing Company Through Three Years of Selective Selling, 400
- Increase in Freight Train Speed, Santa Fe Railroad, 465



# INDEX

- Advertising, 329-330
- Agents (see *purchasing agents' reports*)
- Agriculture (see *cattle and calves; cotton, raw; machinery; silk, raw; wheat*)
- Asphalt, 102
- Assortment orders, 407-408, 411-412
- Automobiles (see *motor vehicles*)
- Bathrooms, 456
- Baths (see *enameled ware baths*)
- Beef products
  - shipments, flow of, 304-307
  - stock burden, 243-244
  - stocks, stability of, 355-357
- Berries, canned
  - order basis for, 76-77
  - orders, size of, 151-154
- Beverage, non-alcoholic, 101, 392
- Blankets
  - orders, flow of, 289-291
  - shipments, flow of, 300, 303
- Books, sales, 107, 109
- Boxes, folding, 102
- Brick, common and face
  - order basis for, 62-64
  - orders, unfilled, 62-64
  - shipments, flow of, 62-64, 321-323
  - stock burden, 248, 250
  - stocks, stability of, 353-354
- Brokers, 418-419
- Building trade
  - brick, common and face, 62-64, 248, 250, 321-323, 353-354
  - cement, Portland, 247-248, 321-323, 353-355
  - contracts awarded, 8, 284-288
  - enameled ware baths, 33, 64-67, 248-250, 283-288, 321-323, 353-354, 363-365
  - lumber, history of buying practices, 440-442
  - oak flooring, 66-69, 248-249, 283-289, 321-323, 352-355, 365-367
  - pine, southern yellow, 248-249, 283-288, 321-323, 352-355
- Building contracts awarded, 8, 284-288
- Business education, 449-451
- Busses, motor (see *motor vehicles*)
- Butter
  - shipments, flow of, 304-305, 310-311
  - stock burden, 244-246
  - stocks, stability of, 355-357
- Cameras, 107, 110
- Candy chains, 335-339
- Canned goods (see *food, canned*)
- Cards, greeting, 102
- Carloading and forwarding companies, 405
- Carryover (see *stock burden*)
- Cattle and calves, 304-306
- Cement, Portland
  - shipments, flow of, 247, 321-323
  - stock burden, 247-248
  - stocks, stability of, 247, 353-355
- Chain stores, 122, 142, 194-195, 335-339, 419
- Charges, service, 406-407, 414
- Cheese
  - shipments, flow of, 304-305, 310-311

- stock burden, 244-246
- stocks, stability of, 355-357
- Cherries, canned
  - order basis for, 51, 76-77
  - orders, size of, 154-156
- Chocolate, 392
- Church and school equipment, 102
- Cigar chains, 335-339
- Clocks, 102
- Clothing (see also *hosiery*, *knit underwear*, *shoes*)
  - order basis for, 48-50
  - orders, advance, 49-50
  - shipments (or sales), flow of, 49-50, 300, 303-304, 332-339
  - stock burden, 235-238
  - stocks, stability of, 348, 351-352
- Coal, bituminous, 323-324, 326
- Colleges of business, 449-451
- Companies, individual
  - food canners
    - Company 10, 206-207
    - Company 13, 213
    - Company 14, 149-150, 213
    - Company 25, 146-147
    - Company 27, 51, 203-206
    - Company 34, 122, 203-205
    - Company 35, 51, 139-142, 207-212, 214-217, 315-317, 319
    - Company 38, 51, 213
    - Company 42, 51, 120-122, 143-144, 150-156, 314-317
    - Company 43, 51, 156-158
    - Company 44, 51, 156-158, 213
    - Company 46, 203-205
    - Company 48, 120-122
  - shoe manufacturers
    - Company A, 36-45, 187-189
    - Company B, 188-190
  - wholesale grocers
    - Company 1 (Delaware), 170-174
    - Company 2, 174
    - Company 3 (Company C), 174-175, 334-335
    - Company 4 (Company B, Pennsylvania), 171-176, 334-335
    - Company 5 (Company D, New York), 171-177, 334-335
    - Company 6, 174-177
    - Company A (Missouri), 170-174, 334-335
    - Tennessee, 171-174
    - Wisconsin, 171-174
- Consumer, 335-342, 419-420
- Copper
  - shipments, flow of, 298-299
  - stock burden, 229-231
  - stocks, stability of, 346-348
- Corn, canned
  - order basis for, 51, 73-74
  - orders, size of, 113-131
    - cumulation of sizes, 130-131
    - number of orders, distribution of, 114-124
    - volume of orders, distribution of, 124-130
  - shipments, flow of, 305, 313-316
  - shipments, size of, 202-205
  - stock burden, 240-241
- Corn syrup, 392
- Costs
  - incidence of, 397-420
  - office, 377-383, 385-387, 390
  - of packing, trucking, and shipping, 380-383, 385-387, 390
  - of securing order, 375-377, 381-383, 385-387, 390
  - of small orders, 212, 373-396
  - summary, 395-396
- Cotton, finished goods
  - orders, flow of, 284-288
  - shipments, flow of, 300, 303, 334-335
  - stock burden, 235-236
  - stocks, stability of, 348, 351-352
- Cotton, raw
  - shipments, flow of, 300-302
  - stock burden, 254

- stocks, stability of, 348, 350-352
- Cottonseed
  - shipments, flow of, 325-326, 328
  - stocks, stability of, 358-360
- Deferred dating plans, 328-329, 358, 409-410
- Delaware wholesale grocer (Company 1), 170-174
- Department stores
  - order basis furnished by, 82-89
  - orders, outstanding, 85-89
  - orders, size of, 185-186
  - sales, flow of, 87-89, 335-336, 339-340
  - shipments to, flow of, 334-335
  - stock burden, 272-274
- Discounts, 406-407, 414
- Draperies, 334-335
- Drinks, soft, 101, 392
- Drugs (see also *medicines*)
  - costs of small orders, 395
  - orders, size of, 101, 177-183
  - shipments (or sales), flow of, 332-333, 335-339
  - stock burden, 267-269
- Dry goods
  - history of buying practice in, 424-432, 439
  - shipments, flow of, 332-335
  - stock burden, 267
- Eggs
  - shipments, flow of, 304-305, 310-311
  - stocks, stability of, 355-357
- Electrical supplies
  - costs of small orders, 395
  - orders, size of, 107, 111
  - selective selling of, 400-401
- Enameled ware baths
  - order basis for, 64-67
  - orders, flow of, 283-288
  - orders, unfilled, 33, 64-67, 363-365
  - production, stability of, 363-365
- shipments, flow of, 33, 64-67, 321-323
- stock burden, 248-250
- stocks, stability of, 353-354
- Feeds, dairy and poultry, 101
- Fish, canned
  - order basis for, 51
  - orders, size of, 156-158, 162-163, 166-167
  - shipments, flow of, 305, 318-320
  - shipments, size of, 213
  - stock burden, 240, 242
- Five and ten cent stores, 335-339
- Flooring (see *oak flooring*)
- Flour and meal
  - costs of deliveries, 392
  - shipments, flow of, 305, 308-309
- Food, canned (see also *companies, individual food canners*)
  - costs of marketing, 212, 384-390, 413-415
  - history of buying practices, 440, 442
  - order basis for, 50-53, 72-78
  - orders, flow of, 290-291
  - orders, size of, 113-158, 161-168, 214-217
  - shipments, flow of, 305, 312-320
  - shipments, size of, 201-213
  - size-of-order groups, 114, 162-163
  - stock burden, 238-242
  - volume-of-order estimates, 125
- Food, not canned (see also *cattle and calves; flour and meal; wheat*)
  - beverage, non-alcoholic, 101, 392
  - butter, 244-246, 304-305, 310-311, 355-357
  - cheese, 244-246, 304-305, 310-311, 355-357
  - chocolate, 392



- corn syrup, 392
- eggs, 304-305, 310-311, 355-357
- groceries, 102, 169-177, 267, 269-272, 332-339, 393-395, 416-417
- meats, 190-197, 243-244, 304-307, 355-357, 415-416
- milk, 305, 309-310
- poultry, 304-305, 310-311, 355-357
- rice, 305, 308-309
- salt, 305, 312
- sugar, 246-247, 305, 312, 355-357
- Fruit, canned
  - order basis for, 51, 76-77
  - orders, size of, 146-156, 162-163, 167-168
  - shipments, flow of, 318-319
  - shipments, size of, 213
  - stock burden, 240-242
- Furniture (see also *steel furniture*)
  - order basis for, 78-79
  - shipments, flow of, 325-327, 334
  - stock burden, 267, 269-270, 284-288
- Gasoline
  - production, 258
  - shipments, flow of, 325-327
  - stock burden, 258-260
  - stocks, stability of, 258-260, 358-360
- Goods, flow of (see *shipments, flow of*)
- Groceries (see also *companies, individual wholesale grocers*)
  - costs of small orders, 393-395, 416-417
  - orders, size of, 102, 169-177
  - shipments (or sales), flow of, 332-339
  - stock burden, 267, 269-272
- Group buying, 122
- Handling charges, 406-407, 414
- Hand-to-mouth buying
  - causes of, 5-11, 424-429, 431, 433-435, 442, 444, 446, 448-470
  - banking system, 425, 429, 444
  - business buying attitude, 448-449
  - communication facilities, 424, 428, 444, 446, 458-459
  - engineering ideals, 434, 444, 446, 449-452
  - overproduction, 431, 435
  - prices, 425, 426-428, 442, 444, 452-453
  - styles, 433, 444, 453-458
  - tariffs or other legislation, 444
  - transportation facilities, 424, 426-429, 435, 444, 446, 459-470
  - evidences of, 424-428, 433-437, 445-446
  - mail order buying, 428, 434, 435, 445
  - small inventories, 425-428, 433-436
  - small orders and shipments, 426-428, 433-436, 445, 446
  - spot buying, 425-428, 434-436, 445, 446
  - stabilization of business, 424, 427, 428, 433-437, 445
  - future of, 447-470
  - history of, 423-446
  - the problem, 12-25
- Hardware
  - costs of small orders, 395
  - orders, size of, 107, 110, 197-199
  - selective selling of, 401
  - shipments, flow of, 332-333, 335
  - stock burden, 266-268, 270-271
- Heels (see *rubber heels*)

- Hides, skins, and leather  
 shipments, flow of, 325-326,  
 328  
 stocks, stability of, 358-360
- Hosiery  
 merchandising policy, 237, 412  
 order basis for, 45-48, 70-71  
 orders, flow of, 283-288  
 orders, unfilled, 70-71  
 shipments, flow of, 70-71, 300,  
 303-304, 334-335  
 stocks, stability of, 348, 351-  
 352  
 style changes, 454-455
- Insurance, life, 102-103
- Inventories (see *stocks*)
- Iron and steel  
 history of buying practices,  
 440-441  
 iron, bar, sheet, structural,  
 and pipe, 296-298  
 iron, merchant pig, 59-60, 232-  
 233, 283-288, 296-298, 344-  
 345  
 iron ore, 296-298, 344-345  
 iron, pig and bloom, 296-298  
 order basis, conclusions, 62  
 steel barrels, 61-62, 233-234,  
 296-298, 344-345  
 steel castings, 283-288  
 steel, fabricated structural,  
 283-289, 296-298  
 steel furniture, 283-288  
 steel ingots, 368-369  
 steel, rolled and finished  
 products, 53-56, 234-235,  
 290-291, 296-298, 368-369  
 steel sheets, 60-61, 233, 283-  
 288, 296-298, 344-345  
 steel, U. S. Steel Corporation,  
 7-8
- Iron, bar, sheet, structural, and  
 pipe, 296-298
- Iron foundry products, 102
- Iron, merchant pig  
 order basis for, 59-60  
 orders, flow of, 283-288  
 shipments, flow of, 296-298  
 stock burden, 232-233  
 stocks, stability of, 344-345
- Iron ore  
 shipments, flow of, 296-298  
 stocks, stability of, 344-345
- Iron, pig and bloom, 296-298
- Jewelry  
 orders, size of, 107, 109  
 stock burden, 270-271  
 Jobbers, 334-335, 411
- Kitchens, 456
- Knit underwear  
 order basis for, 71-72  
 orders, flow of, 283-288  
 orders, unfilled, 71-72, 368  
 production, stability of, 368  
 shipments, flow of, 71-72, 300,  
 303
- Laundry machinery, 102
- Leather (see *hides, skins and  
 leather*)
- Lumber  
 history of buying practices,  
 440-442 (see also *oak floor-  
 ing; pine, southern yellow*)
- Machinery  
 agricultural, 107, 109, 325-326,  
 329  
 laundry, 102  
 washing, 325-327
- Mail order houses, 122, 185-186,  
 335-336, 340-342
- Manufacturers (see *purchasing  
 agents; manufacturers, one  
 hundred fifteen; and sepa-  
 rate commodities*)
- Manufacturers, one hundred  
 fifteen  
 American Manufacturers  
 Amalgamated, 381-383  
 costs of small orders, 374-383  
 incidence of costs, 405-413  
 methods of determining  
 "good sized" order, 377-  
 378  
 orders, size of, 100-112

- Meat (see also *beef and pork*)  
 costs of small orders, 415-416  
 methods of distribution, 190-191  
 orders, size of, 190-197  
 shipments, flow of, 304-307  
 stock burden, 243-244  
 stocks, stability of, 355-357
- Medicines, proprietary, 162-163, 168-169 (see also *drugs*)
- Merchandising policy (see *policy*)
- Metal specialties, 107, 109
- Metals (see *iron and steel* and *metals, non-ferrous*)
- Metals, non-ferrous  
 copper, 229-231, 298-299, 346-348  
 tin, 229-232, 298-299, 346-348  
 zinc, 229-231, 298-299, 346-348
- Milk, fluid, 305, 309-310
- Missouri wholesale grocer (Company A), 170-174, 334-335
- Motor vehicles  
 costs of small orders, 395  
 increasing importance, 460, 467-469  
 shipments, flow of, 325-327  
 styles in, 456
- Musical instruments, 107, 110
- Music chain stores, 335-339
- New York wholesale grocer (Company 5, Company D), 171-177, 334-335
- Oak flooring  
 order basis for, 66-69  
 orders, flow of, 283-289  
 orders, unfilled, 68-69, 365-367  
 production, stability of, 365-367  
 shipments, flow of, 68-69, 249, 321-323  
 stock burden, 248-249  
 stocks, stability of, 352-355
- Oils, 392
- Optical goods, 107, 109
- Orders, advance (see also *order basis*; *orders, outstanding*; and *orders, unfilled*)  
 advantages and disadvantages of, 17-22, 31  
 purpose of, 31  
 variations in, 22-23
- Orders, assortment, 407-408, 411-412
- Order basis (see also *pre-planning* and individual commodities)  
 concept, 31-35  
 definition of, 34-35  
 for individual companies, 36-57  
 for industries, 58-81  
 furnished by buyers, 82-94  
 summaries, 81, 93-94
- Orders, flow of, 14-23, 44-45, 279-292 (see also individual commodities)  
 method of measuring, 280-282  
 relation to flow of shipments, 282, 293  
 summary, 292
- Orders, future (see *order basis*; *orders, advance, outstanding, unfilled*)
- Orders outstanding, 86-89 (see also *order basis*; *orders, advance, unfilled*)
- Orders, size of, 100-200 (see also individual commodities)  
 compared with size of shipments, 97-98, 214-217  
 encouragement of small orders, 411-412 (see also 407-408)  
 methods of measuring, 104-106  
 summaries, 199-200
- Orders, unfilled (see also *order basis*; *orders, advance, outstanding*)  
 as a measure of business activity, 32-34

- as a measure of order basis, 32-34
- effect on stability of production, 362-370
- Overcapacity, 10
- Packing charges for small orders, 406-407, 414
- Paints and varnishes, 107, 110, 392
- Paper, 101, 392
- Peaches, canned
  - order basis for, 76-77
  - orders, size of, 147-148
  - shipments, flow of, 318-319
  - shipments, size of, 213
  - stock burden, 240, 242
- Pears, canned
  - order basis for, 76-78
  - orders, size of, 148-151
  - shipments, flow of, 318-319
  - shipments, size of, 213
  - stock burden, 240, 242
- Peas, canned
  - order basis for, 51, 74-76
  - orders, size of, 132-138
  - shipments, flow of, 305, 315-317
  - shipments, size of, 204-206
  - stock burden, 239-240
- Pennsylvania wholesale grocer (Company 4, Company B), 171-176, 334-335
- Pineapple, canned, 146-147
- Pine, southern yellow
  - orders, flow of, 283-288
  - shipments, flow of, 321-323
  - stock burden, 248-249
  - stocks, stability of, 352-355
- Policy, merchandising canners, 52-53
  - hosiery manufacturers, 237, 412
  - men's clothing manufacturers, 50
  - wholesalers, 52-53
- Pool cars, 405, 407
- Pork and beans, canned 290-291, 320
- Pork products
  - shipments, flow of, 304-307
  - stock burden, 243-244
  - stocks, stability of, 355-357
- Poultry
  - shipments, flow of, 304-305, 310-311
  - stocks, stability of, 355-357
- Pre-planning (see also *order basis*)
  - desirability of, 17-22
  - measure of, 32, 35
  - methods of, 31-32
  - possibilities of, 17-22
  - variations in, 22-23
- Prices, 8-9, 41, 115-116 (see also *hand-to-mouth buying*, *causes of*, *prices*)
- Production (see also individual commodities)
  - index of, 8
  - method of measuring stability, 280-282
  - planning of, 16-17, 31-32
  - stability of, 362-370
  - summary, 369-370
- Pumps, industrial
  - order basis for, 79-81
  - orders, size of, 107, 110
  - orders, unfilled, 79-81
  - shipments, flow of, 79-81, 325-326, 328
- Purchasing agents' reports
  - order basis furnished by manufacturers, 89-93
  - stock burden of raw materials held by manufacturers, 261-265
- Railways (see also *pool cars*)
  - charges for small orders, 417-418
  - growth of and improvements in, 460-467
  - seasonality of originating freight tonnage, 294-295
  - seasonality of ton-miles of freight carried, 329-331
- Rayon, 348-350
- Refrigerators, 101

- Regularity (see *orders, production, shipments, stocks*)  
 Restaurants, Childs, 335-339  
 Retail stores (see *chain, department, drug, grocery, hardware, jewelry, and shoe stores; mail order houses*)  
 Rice, 305, 308-309  
 Rubber heels, 325-326, 328, 358-359  
 Sales (see *books, sales; shipments*)  
 Sales, future (see *order basis; orders, advance, outstanding, unfilled*)  
 Salmon, canned (see *fish, canned*)  
 Salt, 305, 312  
 School and church equipment, 102  
 Schools of business, 449, 451  
 Seasonality (see *orders, production, shipments, stocks*)  
 Selective selling, 399-401, 408-409, 410, 415-417  
 Service charges, 406-407, 414  
 Shellac, 392  
 Shipments, flow of (see also *individual commodities*)  
     compared to flow of orders, 282, 293  
     early stages of production, 44-45, 293-331  
     later stages of production, 332-342  
     method of measuring, 280-282  
 Shipments, size of, 97-98, 201-217  
 Shoes (see also *companies, individual shoe manufacturers; rubber heels*)  
     history of buying practices, 433-440  
     order basis for, 36-45  
     orders, size of, 101, 186-190  
     shipments (or sales), flow of, 189, 335-339  
     stock burden, 255-258, 267-268, 270-271  
     style changes, 453-454  
 Silk, finished goods, 334-335  
 Silk, raw  
     shipments, flow of, 300-303  
     stock burden, 235-236  
     stocks, stability of, 348, 350-351  
 Size of units (see *orders, shipments, units*)  
 Soap, 112, 392  
 "Skimming the market," 408-409  
 Skins (see *hides, skins, and leather*)  
 Spaghetti, canned, 290-291, 320  
 Spark plugs, 102  
 Stabilization, 18-22 (see also *orders, production, shipments, stocks*)  
 Steel (see *iron and steel*)  
 Steel barrels  
     order basis for, 61-62  
     shipments, flow of, 296-298  
     stock burden, 233-234  
     stocks, stability of, 344-345  
 Steel castings, 283-288  
 Steel, fabricated structural, 283-289, 296-298  
 Steel furniture, 283-288  
 Steel ingots, 368-369  
 Steel, rolled and finished products  
     order basis for, 53-56  
     orders, flow of, 290-291  
     orders, unfilled, 56, 368-369  
     shipments, flow of, 56, 296-298  
     stock burden, 234-235  
 Steel sheets  
     order basis for, 60-61  
     orders, flow of, 283-288  
     shipments, flow of, 296-298  
     stock burden, 233  
     stocks, stability of, 344-345  
 Stock burden (see also *individual commodities*)  
     concept, 223-228  
     conclusions, 274-276

- methods of measuring, 226-227
- of goods for sale by merchants, 266-274
- of goods for sale by others than merchants, 229-260
- of raw materials, 261-265
- Stock turnover (see *stock burden*)
- Stocks (see also individual commodities)
  - as a measure of stock burden, 226
  - control of, by manufacturers, 412-413
  - method of measuring stability of, 280-282
  - stability of, 343-361
- Stores (see *chain, department, retail, and wholesale stores; mail order houses*)
- Stores burden of manufacturers, 261-265
- Styles, 433, 444, 453-458
- Sugar
  - shipments, flow of, 305, 312
  - stock burden, 246-247
  - stocks, stability of, 355-357
- Supplies, office, 102, 107, 109 (see also *stores burden of manufacturers*)
- Sweepers, floor, 102
- Tin
  - stock burden, 229-232
  - shipments, flow of, 298-299
  - stocks, stability of, 346-348
- Tires, pneumatic
  - stock burden, 259-260
  - shipments, flow of, 325-326, 328-329
  - stocks, stability of, 358-359
- Tomatoes, canned
  - order basis for, 51, 75-76
  - orders, size of, 138-145, 214-217
  - shipments, flow of, 305, 315, 317, 319
  - shipments, size of, 206-212, 214-217
  - stock burden, 240-241
- Trade, flow of, 13-14, 280-282, 294-295 (see also *orders, shipments*)
- Transportation (see *railways, motor vehicles*)
  - charges, 406-407, 414
- Trucks (see *motor vehicles*)
- Typewriter ribbons, 102
- Underwear (see *knit underwear*)
- Units, size of, 97-99 (see also *orders, shipments*)
- Vegetables, canned, 162-166 (see also *corn, peas, tomatoes*)
- Varnishes and paints, 107, 110, 392
- Warehouses
  - costs of small deliveries, 390-393
  - deliveries, size of, 159-169
  - description of, 159-161
  - growth in, 403-404
  - remedy for costs of small orders, 402-404, 410-411
- Washing machines, 325-327
- Wheat
  - shipments, flow of, 305, 307-308
  - stock burden, 251-254
- Wheels, grinding, 102
- Wholesalers
  - costs of small orders, 393-395
  - importance, change in, 402, 411, 419
  - orders, size of, 169-183, 185-186, 198-199
  - shipments, flow of, 332-335
  - stock burden, 267-270
- Woolen dress goods, 334-335
- Wool, raw, 300-302, 392
- Zinc
  - shipments, flow of, 298-299
  - stock burden, 229-231
  - stocks, stability of, 346-348



# **Publications of the Brookings Institution**

## **THE INSTITUTE OF ECONOMICS**

### **GERMANY'S CAPACITY TO PAY.**

By Harold G. Moulton and Constantine E. McGuire.  
1923. \$2.50. 384 pp.

### **RUSSIAN DEBTS AND RUSSIAN RECONSTRUCTION.**

By Leo Pasvolsky and Harold G. Moulton. 1924. \$2.50.  
247 pp.

### **THE REPARATION PLAN.**

By Harold G. Moulton. 1924. \$2.50. 325 pp.

### **THE FRENCH DEBT PROBLEM.**

By Harold G. Moulton and Cleona Lewis. 1925. \$2.00.  
459 pp.

### **THE RUHR-LORRAINE INDUSTRIAL PROBLEM.**

By Guy Greer. 1925. \$2.50. 328 pp.

### **WORLD WAR DEBT SETTLEMENTS.**

By Harold G. Moulton and Leo Pasvolsky. 1926. \$2.00.  
448 pp.

### **ITALY'S INTERNATIONAL ECONOMIC POSITION.**

By Constantine E. McGuire. 1926. \$3.00. 588 pp.

### **THE INTERNATIONAL ACCOUNTS.**

By Cleona Lewis. 1927. \$2.00. 170 pp.

### **AMERICAN LOANS TO GERMANY.**

By Robert R. Kuczynski. 1927. \$3.00. 378 pp.

### **ECONOMIC NATIONALISM OF THE DANUBIAN STATES.**

By Leo Pasvolsky. 1928. \$3.00. 605 pp.

### **MAKING THE TARIFF IN THE UNITED STATES.**

By Thomas Walker Page. 1924. \$2.50. 281 pp.

### **SUGAR IN RELATION TO THE TARIFF.**

By Philip G. Wright. 1924. \$2.50. 312 pp.

### **THE TARIFF ON WOOL.**

By Mark A. Smith. 1926. \$2.50. 350 pp.



**THE CATTLE INDUSTRY AND THE TARIFF.**

By Lynn Ramsay Edminster. 1926. \$2.50. 331 pp.

**THE TARIFF ON ANIMAL AND VEGETABLE OILS.**

By Philip G. Wright. 1928. \$2.50. 347 pp.

**THE TARIFF ON IRON AND STEEL.**

By Abraham Berglund and Philip G. Wright. 1929.  
\$3.00. 240 pp.

**AMERICAN AGRICULTURE AND THE EUROPEAN MARKET.**

By Edwin G. Nourse. 1924. \$2.50. 333 pp.

**THE FEDERAL INTERMEDIATE CREDIT SYSTEM.**

By Claude L. Benner. 1926. \$2.50. 375 pp.

**FINANCING THE LIVESTOCK INDUSTRY.**

By Forrest M. Larmer. 1926. \$2.50. 327 pp.

**INDUSTRIAL PROSPERITY AND THE FARMER.**

By Russell C. Engberg. 1927. \$2.50. 286 pp.

**THE LEGAL STATUS OF AGRICULTURAL CO-OPERATION.**

By Edwin G. Nourse. 1927. \$3.00. 555 pp.

**THE MEXICAN AGRARIAN REVOLUTION.**

By Frank Tannenbaum. 1929. \$2.50. 543 pp.

**MINERS' WAGES AND THE COST OF COAL.**

By Isador Lubin. 1924. \$2.50. 316 pp.

**THE CASE OF BITUMINOUS COAL.**

By Walton H. Hamilton and Helen R. Wright. 1925.  
\$2.50. 310 pp.

**THE COAL MINERS' STRUGGLE FOR INDUSTRIAL STATUS.**

By Arthur E. Suffern. 1926. \$2.50. 462 pp.

**THE BRITISH COAL DILEMMA.**

By Isador Lubin and Helen Everett. 1927. \$2.50.  
370 pp.

**A WAY OF ORDER FOR BITUMINOUS COAL.**

By Walton H. Hamilton and Helen R. Wright. 1928.  
\$2.50. 365 pp.

**RAILROAD PURCHASING AND THE BUSINESS CYCLE.**

By John E. Partington. 1929. \$3.00.

**WORKERS' HEALTH AND SAFETY: A STATISTICAL PROBLEM.**

By Robert Morse Woodbury. 1927. \$2.50. 207 pp.

**LABOR AND INTERNATIONALISM.**

By Lewis L. Lorwin. 1929. \$3.00. 682 pp.

**UNEMPLOYMENT INSURANCE IN GERMANY.**

By Mollie Ray Carroll. 1929. \$2.00. 137 pp.

**THE ST. LAWRENCE NAVIGATION AND POWER PROJECT.**

By Harold G. Moulton, Charles S. Morgan, and Adah L. Lee. 1929. \$4.00. 675 pp.

**INTEREST RATES AND STOCK SPECULATION.**

By Richard N. Owens and Charles O. Hardy. 1925.  
\$2.00. 197 pp.

**TAX-EXEMPT SECURITIES AND THE SURTAX.**

By Charles O. Hardy. 1926. \$2.00. 216 pp.

**THE BALANCE OF BIRTHS AND DEATHS.**

By Robert R. Kuczynski. 1928. \$2.00. 140 pp.

**THE INSTITUTE FOR GOVERNMENT RESEARCH  
STUDIES IN ADMINISTRATION**

**THE SYSTEM OF FINANCIAL ADMINISTRATION OF GREAT  
BRITAIN.**

By W. F. Willoughby, W. W. Willoughby, and S. M. Lindsay. 378 pp. Out of print. 1917.

**THE BUDGET: A TRANSLATION.**

By Rene Stourm. 648 pp. \$4.00. 1917.

**THE CANADIAN BUDGETARY SYSTEM.**

By H. C. Villard and W. W. Willoughby. 390 pp. \$3.00.  
1918.

**THE PROBLEM OF A NATIONAL BUDGET.**

By W. F. Willoughby. 234 pp. Out of print. 1918.

**THE NATIONAL BUDGET SYSTEM, WITH SUGGESTIONS FOR ITS IMPROVEMENT.**

By W. F. Willoughby. 359 pp. \$3.00. 1927.

**THE MOVEMENT FOR BUDGETARY REFORM IN THE STATES.**

By W. F. Willoughby. 266 pp. \$3.00. 1918.

**THE LEGAL STATUS AND FUNCTIONS OF THE GENERAL ACCOUNTING OFFICE.**

By W. F. Willoughby. 204 pp. \$3.00. 1927.

**MANUAL OF ACCOUNTING AND REPORTING FOR THE OPERATING SERVICES OF THE NATIONAL GOVERNMENT.**

By Henry P. Seidemann. 421 pp. \$5.00. 1926.

**MANUAL OF ACCOUNTING, REPORTING, AND BUSINESS PROCEDURE FOR THE TERRITORIAL GOVERNMENT OF HAWAII.**

By Henry P. Seidemann. 598 pp. \$5.00. 1928.

**THE DEVELOPMENT OF NATIONAL ADMINISTRATIVE ORGANIZATION IN THE UNITED STATES.**

By Lloyd M. Short. 531 pp. \$5.00. 1923.

**ORGANIZED EFFORTS FOR THE IMPROVEMENT OF METHODS OF ADMINISTRATION IN THE UNITED STATES.**

By Gustavus A. Weber. 408 pp. \$3.00. 1919.

**THE REORGANIZATION OF THE ADMINISTRATIVE BRANCH OF THE NATIONAL GOVERNMENT.**

By W. F. Willoughby. 314 pp. Out of print. 1922.

**THE GOVERNMENT AND ADMINISTRATION OF GERMANY.**

By Frederick F. Blachly and Miriam F. Oatman. 784 pp. \$5.00. 1928.

**THE STATISTICAL WORK OF THE NATIONAL GOVERNMENT.**

By Laurence F. Schmeckebier. 590 pp. \$5.00. 1925.

**THE NATIONAL GOVERNMENT AND PUBLIC HEALTH.**

By James A. Tobey. 441 pp. \$3.00. 1926.

**THE DEPARTMENT OF JUSTICE OF THE UNITED STATES.**

By Albert Langeluttig. 334 pp. \$3.00. 1927.

**THE DISTRICT OF COLUMBIA; ITS GOVERNMENT AND ADMINISTRATION.**

By Laurence F. Schmeckebier. 963 pp. \$5.00. 1928.

**THE PROBLEM OF INDIAN ADMINISTRATION.**

By Lewis Meriam and Associates. 894 pp. \$5.00. 1928.

**THE DEVELOPMENT OF GOVERNMENTAL FOREST CONTROL IN THE UNITED STATES.**

By Jenks Cameron. 479 pp. \$3.00. 1928.

**GROUP REPRESENTATION BEFORE CONGRESS.**

By E. Pendleton Herring. 327 pp. \$3.00. 1929.

**REGISTRATION OF VOTERS IN THE UNITED STATES.**

By Joseph P. Harris. 408 pp. \$3.00. 1929.

**THE GOVERNMENT AND ADMINISTRATION OF THE DISTRICT OF COLUMBIA: SUGGESTIONS FOR CHANGE.**

By Laurence F. Schmeckebier and W. F. Willoughby. 198 pp. \$2.00. 1929.

**PRINCIPLES OF ADMINISTRATION**

**PRINCIPLES OF PUBLIC ADMINISTRATION.**

By W. F. Willoughby. 742 pp. \$5.00. 1927.

**PRINCIPLES OF JUDICIAL ADMINISTRATION.**

By W. F. Willoughby. 684 pp. \$5.00. 1929.

**PRINCIPLES OF GOVERNMENT ACCOUNTING AND REPORTING.**

By Francis Oakey. 582 pp. \$5.00. 1921.

**PRINCIPLES OF GOVERNMENT PURCHASING.**

By Arthur G. Thomas. 290 pp. \$3.00. 1919.

**PRINCIPLES OF PUBLIC PERSONNEL ADMINISTRATION.**

By Arthur W. Procter. 256 pp. \$3.00. 1921.

**SERVICE MONOGRAPHS ON THE UNITED STATES  
GOVERNMENT**

1. Geological Survey. 174 pp: Out of print. 1918.
2. Reclamation Service. 190 pp. Out of print. 1919.
3. Bureau of Mines. 174 pp. \$1.00. 1922.

4. Alaskan Engineering Commission. 134 pp. \$1.00. 1922.
5. Tariff Commission. 84 pp. \$1.00. 1922.
6. Federal Board of Vocational Education. 86 pp. \$1.00. 1922.
7. Federal Trade Commission. 92 pp. \$1.00. 1922.
8. Steam-boat Inspection Service. 142 pp. \$1.00. 1922.
9. Weather Bureau. 100 pp. \$1.00. 1922.
10. Public Health Service. 312 pp. \$2.00. 1923.
11. National Park Service. 184 pp. \$1.00. 1922.
12. Employees' Compensation Commission. 98 pp. \$1.00. 1922.
13. General Land Office. 236 pp. \$1.50. 1923.
14. Bureau of Education. 172 pp. \$1.00. 1923.
15. Bureau of Navigation. 136 pp. \$1.00. 1923.
16. Coast and Geodetic Survey. 120 pp. \$1.00. 1923.
17. Federal Power Commission. 138 pp. \$1.00. 1923.
18. Interstate Commerce Commission. 182 pp. \$1.00. 1923.
19. Railroad Labor Board. 96 pp. \$1.00. 1923.
20. Division of Conciliation. 48 pp. \$1.00. 1923.
21. Children's Bureau. 95 pp. \$1.00. 1925.
22. Women's Bureau. 44 pp. \$1.00. 1923.
23. Office of the Supervising Architect. 150 pp. \$1.00. 1923.
24. Bureau of Pensions. 150 pp. \$1.00. 1923.
25. Bureau of Internal Revenue. 283 pp. \$1.50. 1923.
26. Bureau of Public Roads. 134 pp. \$1.00. 1923.
27. Office of the Chief of Engineers. 178 pp. \$1.00. 1923.
28. United States Employment Service. 142 pp. \$1.00. 1923.
29. Bureau of Foreign and Domestic Commerce. 192 pp. \$1.00. 1924.
30. Bureau of Immigration. 260 pp. \$1.50. 1924.
31. Patent Office. 139 pp. Out of print. 1924.

32. Office of Experiment. 190 pp. \$1.00. 1924.
33. Customs Service. 203 pp. \$1.50. 1924.
34. Federal Farm Loan Bureau. 171 pp. \$1.00. 1924.
35. Bureau of Standards. 314 pp. \$2.00. 1925.
36. Government Printing Office. 155 pp. \$1.00. 1925.
37. Bureau of the Mint. 102 pp. \$1.00. 1926.
38. Office of the Comptroller of the Currency. 96 pp. \$1.00. 1926.
39. Naval Observatory. 113 pp. \$1.00. 1926.
40. Lighthouse Service. 170 pp. \$1.00. 1926.
41. Bureau of Animal Industry. 202 pp. \$1.50. 1927.
42. Hydrographic Office. 124 pp. \$1.00. 1926.
43. Bureau of Naturalization. 120 pp. \$1.00. 1926.
44. Panama Canal. 430 pp. \$2.50. 1927.
45. Medical Department of the Army. 173 pp. \$1.50. 1927.
46. General Accounting Office. 227 pp. \$1.50. 1927.
47. Bureau of Plant Industry. 133 pp. \$1.00. 1927.
48. Office of Indian Affairs. 605 pp. \$3.00. 1927.
49. United States Civil Service Commission. 165 pp. \$1.50. 1928.
50. Food, Drug, and Insecticide Administration. 146 pp. \$1.50.
51. Coast Guard. 276 pp. \$1.50. 1929.
52. Bureau of Chemistry and Soils. 231 pp. \$1.50. 1928.
53. Bureau of the Census. 234 pp. \$1.50. 1929.
54. Bureau of Biological Survey. 349 pp. \$2.00. 1929.
55. Bureau of Dairy Industry. 83 pp. \$1.50. 1929.
56. Bureau of Engraving and Printing. 121 pp. \$1.50. 1929.
57. Bureau of Prohibition. 343 pp. \$2.00. 1929.
58. Forest Service. (In Press.)
59. Plant Quarantine and Control Administration. (In Press.)
60. Bureau of Entomology. (In Press.)

## DATE OF ISSUE

This book must be returned  
within 3, 7, 14 **days** of its issue. A  
fine of ONE ANNA per day will  
be charged if the book is overdue.

---

--	--

